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MASSEY'S GARDEN BOOK

FOR THE

SOUTHERN STATES

W. F. MASSEY

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PROFESSOR MASSEY

STANDING AT THE ENTRANCE TO HIS GARDEN

Massey's Garden Book

For the Southern States

By W. F. MASSEY, Sc. D.

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GOD Almighty first planted a garden; and indeed, it is the purest of human pleasures; it is the greatest refreshment to the spirits of man without which buildings and palaces are but gross handiworks; and a man shall ever see, that, when ages grow to civility and elegancy, men come to build stately sooner than to garden finely; as if gardening were the greatest perfection.—Lord Bacon: Essay on Gardens.

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Vol. 1

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BLESS THE LITTLE GARDENS

Lord God in Paradise,
  Look upon our sowing;
Bless the little gardens
  And the good green growing!
Give us sun,
  Give us rain,
Bless the orchards
  And the grain!

Lord God in Paradise,
  Please bless the beans and peas,
Give us corn full on the ear—
  We will praise thee, Lord, for these!
Bless the blossom
  And the root,
Bless the seed
  And the fruit!

Lord God in Paradise,
  Over my brown field is seen,
Trembling and adventuring,
  A miracle of green.
Send such grace
  As you know,
To keep it safe
  And make it grow!

Lord God in Paradise,
  For the wonder of the seed,
Wondering, we praise you, while
  We tell you of our need.
Look down from Paradise,
  Look upon our sowing,
Bless the little gardens
  And the good green growing!
Give us sun,
  Give us rain,
Bless the orchards
  And the grain!

—Louise Driscol, in
New York Times.

PREFACE

FOR YEARS past, many readers of The Progressive Farmer have been asking me to prepare a garden book. Therefore, in the intervals of a very busy life, I have prepared this little volume. It is not intended to be a treatise on horticulture, but is simply a little handbook for daily guidance in making the farm garden.

I hope it may have some influence in promoting all-the-year-round gardening in the South and aid in abolishing the old-style garden which is surrendered to weeds and dead corn-stalks in the fall; and will make it possible instead to have gardens yielding their products without cessation.

"Hog and hominy" and black-eye peas are good things, but they do not furnish the healthful variety of food which the garden should enable any farm family to have. A frame and a few glass sashes will furnish plenty of lettuce all winter, and radishes, too, and the open garden should supply spinach, kale, leeks, parsnips, salsify, carrots, cabbages and collards (the latter buried where they grew). These, with the stored onions, potatoes (Irish and sweet) and the canned fruits and vegetables of summer growth, will give the table of the Southern farmer such a bounteous supply of food that he will hardly be able to tell the difference between summer and winter garden.

With all these things easily available, there is no need for the Southern farmer to live all winter on salt pork and bacon, corn bread and black-eye peas. So, here's for an "all-the-year-garden."

W. F. MASSEY.

I.—THE GARDEN AND ITS EQUIPMENT

The Garden Soil

IT SHOULD hardly be necessary to say that the garden soil must be well-drained and fertile. A soil inclining more to sand than clay, a mellow sandy loam with a clay subsoil, is the most desirable character of soil for vegetable growing. But the heavy clay soils may be made very productive by getting them more mellow through the turning under of vegetable growth and the use of heavy applications of stable manure.

There are three things essential to the germination of seed, and if any one of these is absent there will be no germination. These essentials are (1) a proper degree of heat, (2) moisture and (3) the presence of the oxygen of the air. The required degree of heat varies a great deal in different plants. The seed of the English pea will germinate when the soil is but a few degrees above the freezing point, while seed of corn, tomatoes and other tender plants would fail to grow and probably perish entirely. All the hardy vegetables will grow at a low temperature and hence, as a rule, should be sown early; for the more resistant a plant is to cold the more it is liable to suffer in our summer heat.

To push forward the tender plants like tomatoes, egg plant and peppers, therefore, we must make the heat needed for their growth by artificial means in hotbeds under glass sashes or in greenhouses heated by furnace or boiler.

Manuring and Fertilizing the Garden

In many old gardens where a liberal quantity of stable manure has been applied every year, the soil gets an excess of nitrogen, and vegetables grown for their underground parts run to top and become unproductive. Then the owner says that his soil has "gotten too rich to make potatoes," etc. The fact is that it has simply gotten *unbalanced*. The foods mainly needed in the making of tubers on the potatoes are phosphorus and potassium, and if there is a due supply of these in the soil potatoes will be made no matter how large the tops grow.

But depending on stable manure alone leads to an excess of nitrogen and a rank growth without corresponding production of roots and tubers. The remedy is not to stop the manure, but to supply what it mainly lacks. In my own garden I manure very heavily in the fall, and in the spring add acid phosphate or raw bone meal at rate of 1,000 pounds an acre.

Where there is not an adequate amount of stable manure, about the best general fertilizer we can use is a mixture of equal parts of cotton seed meal and acid phosphate. This will give a liberal amount of phosphoric acid, and 1 per cent or more of potash from the meal. This, if used in liberal quantity, will make a good fertilizer for nearly all garden crops.

The great importance of stable manure is due to its humus-making character, and when to this we add all the garden refuse which may be rotted down in a heap each year, the soil is in the best possible condition to use additional commercial fertilizers, because of its greater capacity for retaining moisture to dissolve them.

With a good rotation of humus-making crops in the outer truck patch, we can use the commercial fertilizers to advantage there and save the stable manure for the garden proper, since cowpeas and crimson clover will abundantly supply the humus-making material otherwise obtained from the stable manure.

Rotation of Garden Crops

Rotation of crops in the garden is just as important as the rotation of farm crops. Continuous planting of land in the same or similar crops will lead to an increase of the diseases and insects peculiar to that crop. As a general rule, with some exceptions, *crops grown for their roots should follow crops grown for their tops and vice versa.* The only garden crop I know which is better grown for some years on the same land is onions. Properly manured and cleanly cultivated, onions seem to prefer to be kept for several years in the same soil.

Hence, it is always well to make a planting plan for the garden every spring, and keep it for reference the next spring, so as to know just where each vegetable was planted the spring before—and then what followed it the same summer and fall;

for in the South every garden plan should be for an all-the-year-round garden, and without the plan it is hard to keep a record of the various plantings.

Beans and peas, being legumes, will return a considerable amount of nitrogen to the soil if their tops are buried after the crop is gathered.

While in the larger truck patch we can alternate the crops with legumes like peas and crimson clover, the garden that is properly kept at work all the year must depend for its humus on heavy applications of manure and the return to the soil of all vegetable refuse after it has been rotted in a compost.

But we can follow the onions that ripen in June with peas and turn these under for planting onions again in the fall. In this way, with a liberal use of phosphate, the onion land may be kept improving. Or if the black-eye peas are not wanted in the garden, we can use snap bean vines for digging under after gathering the beans.

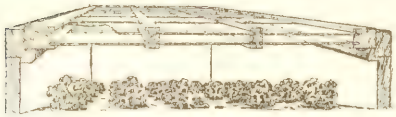
Every Good Gardener Must Have Sashes and Frames

No garden is complete for year-round work without some glass sashes and frames. Cotton cloth on the frames is a poor substitute for glass, and in the long run costs more. Frames covered with cotton cloth will answer for hardening tender plants in the spring, but for regular fall and winter work, the glass sashes are far superior.

CLOTH-COVERED FRAME

Sashes are made three feet wide and six feet long. The best sashes are made of clear-heart cypress lumber. They are made either for a single layer of glass or for two layers, the latter making a dead air space between them, and thus causing the sashes to be more resistant to cold.

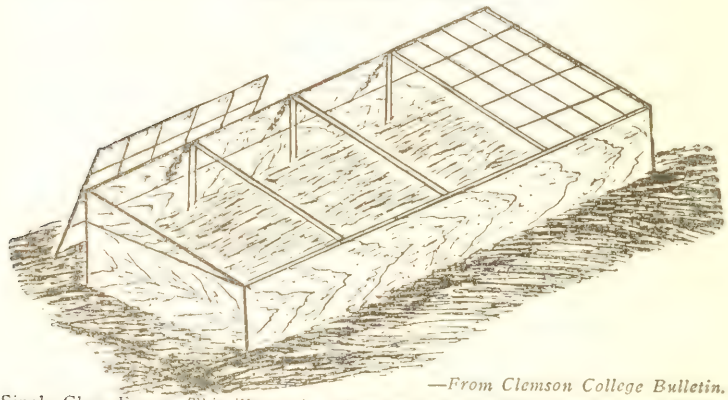
The frames for the sashes are made six feet wide and as long as needed, being extended so as to embrace as many 3 x 6 feet units as are wanted. Market gardeners make them of inch lumber nailed to posts set in the ground, the back or north side being about 12 inches high and the front or south side 10 inches. For the home garden I have found it better to use small portable frames so that it is easy to repeat a crop by simply moving the frame to a fresh spot. My frames are made for three of the 3 x 6 feet sashes. Between each pair of sashes a 1 x 3 inch crossbar is dovetailed into the sides of the frame, but not nailed, so that it can be slipped out in preparing the soil of the frame or in making a hotbed. In the middle of this crossbar is nailed a half-inch strip as a parting strip, making a slide for the sashes.



DOUBLE-GLASS COVERED FRAME

Marketmen use no crossbar, merely resting the sashes on the sides of the frame. But this necessitates a man on each side of the frame to move a sash, while with the slides one man can easily open the frame by sliding the sash up or down.

SINGLE-GLASS FRAME



—*From Clemson College Bulletin.*

Single Glass Frame—This illustration shows a hotbed which is amply large for the family garden. The frame will accommodate four sash. The frame is 6x12 ft.

The double-glazed sashes are far more costly than the single-glazed ones and are heavier to handle. But with a frame well banked with earth on the outside, and the crossbars to stop the cracks between the sashes, no frost will get inside at a zero temperature, and we can grow things in the dead of winter that will be hard to grow with single sashes unless well covered at night with straw mats.

In the early use of the double-glazed sashes, one great difficulty appeared. The dust would inevitably blow in between the layers of glass and would so obscure it that the sashes became almost useless because of being so darkened. This difficulty has been solved in the Callahan duo-glazed sashes, which are made so that it is easy to remove a pane or two of glass and wash the interior. The weight of the duo-glazed sashes is also an advantage, for light sashes are often blown off the frames in high winds.

"Cold Frames" and "Hotbeds"; How Distinguished—The frame and sashes when used simply on a bed of fertile soil constitute what is called a *"cold frame."* Cold frames get no heat except from the sun. A frame under which there is a deep bed of fermenting manure is called a *"hotbed."*

Hotbeds are used for starting tender plants of such things as tomatoes, egg plant and pepper in late winter so as to get the products earlier than otherwise could be done. It is well to have several frames of the three-sash size, as they can be used either as cold frames or on hotbeds, as needed.

To make a hotbed, dig a pit 20 inches deep and 6 inches wider each way than the frame that is to be used on it. Then pile a lot of fresh manure nearby, and when it begins to steam, turn it over and repile it. Then, when it heats again, put it into the pit, tramping and packing it down firmly until the pit is filled. Then place the frame on it and bank all around the outside with manure.

In the frame put 4 inches of fine compost as used in frames. Stick a thermometer in this, and put on the sashes with a little opening at the top, and watch the rise of heat. Do not sow the seed when the first rank heat is on, but wait until it begins to decline. When it has fallen to 85 degrees, you can sow the seed.

One of the principal uses of the cold frame is for growing head lettuce in fall, winter and early spring. They can also be used for blooming the flowering bulbs in winter, blooming violets clear of frost, and should also be used for hardening off the tender plants started in the hotbed, since it is never well to transplant directly from hotbed to open ground.

Using Sashes and Frames

It may be well to indicate in a concrete way just how frames are used:

Lettuce in Cold Frames—In the fall one or more frames are planted in lettuce. Seed of the Big Boston lettuce are sown early in September, and in October are set 8 x 10 inches apart in frames. The soil in the frames is made of a compost of manure and grass sods which has been cut in early spring and built up in layers with fresh manure. During the summer the pile has been cut down and repiled twice till the compost has well rotted. At each turning a goodly amount of raw bone meal has been sprinkled through the heap. This compost is 6 inches deep in the frames.

During the growth of the lettuce a light sprinkling of nitrate of soda is made between the rows, and the frames are kept well watered. The sashes are not put on till the nights get frosty, and in all sunny weather air is given by slipping down the sashes more or less. This crop comes off about Christmas or New Year's.

If it is desirable to replant the same sashes with lettuce, a fresh spot is manured, and the frame removed and set with plants that have been sown later or sown in another frame in October.

Beets and Radishes—Or the frame can now be freshly fertilized and at once replanted with beets and radishes, using seed of the Early Egyptian beet and the turnip-rooted radish, making the rows 6 inches apart and planting alternately beets and radishes. The radishes will come out by February and the beets will have 12-inch rows and should be thinned to 3 inches or more apart.

Early in March the beets are gradually exposed to the air and by the middle of the month the frame is removed to another place to be used in transplanting the tomato plants that have been started in a hotbed or greenhouse, so that they can be grown strong and hardened off for transplanting to the open garden in April.

Cauliflower in Frames—In October another frame can be prepared in a similar manner, and cauliflower plants from seed sown in September set six plants to a sash. The space between these is then set with a close-heading lettuce like the Tennis Ball or Belmont. This lettuce, too, will come out by the first of January, and the cauliflower let grow, and aided by applications of nitrate of soda, will be getting up near the glass by March. Then, like the beets, they are hardened off and the frame removed by the middle of the month, for it is necessary to transplant tomato and other tender plants into the frames in order to get them strong and hardy. As already said, it is never well to transplant to the open ground directly from a hotbed.

Tomatoes—To start tomatoes for early fruiting, the hotbed should be made and sown ten weeks before it is safe to set plants in the open ground in your section. Then by the middle of March usually the plants will be large enough to transplant into cold frames. In the frames we set them 4 inches apart each way and deeper than they grew in the hotbed, and then give close attention to airing and watering. Sometime before it is time to set them out, we gradually expose them to the air to harden the plants. I like always to get tomato plants so hardened that the stems are dark purplish instead of bright green. This is a sign of hardiness and the plants will stand exposure better than if kept so warm that the stems remain a bright green.

Miscellaneous Uses for Frames—Other plants can be forwarded in the cold frames. By filling 4-inch pots or even strawberry boxes with good compost and packing them in the frames, planting seed of cucumbers, cantaloupes, watermelons, lima beans and other things in the boxes or pots direct, they can then be transplanted when the weather is warm without disturbing the roots.

In the hotbed, after the tomatoes are transplanted to the frames, seed of egg plant and peppers can be sown, and these transplanted later, for the time for sowing tomatoes is too early for the egg plant, which need more heat and sunlight. And except for the market gardener the peppers are not needed so very early. I usually start egg plant and peppers in March.

Value of a Small Greenhouse

Every home garden would be better fitted for work by having a little greenhouse in which to start the spring plants early and to have some flowers in winter. I have one of the smallest. This is a little house attached to the rear of my office, and into which I can walk in two steps from the desk where I write. It is only 6 feet wide and 10 feet long. In the cellar, under the office, is a little hot water boiler and from this the hot water flows in a horizontal coil of six pipes, each 9 feet long, hanging under the table in the greenhouse. The whole affair including the boiler and piping did not cost more than $100. It is a convenient place to work and saves the making of a hotbed. One hod of coal runs it for a day and maintains a heat of 60 degrees on cold nights. In fall and winter I grow flowers in it, and in February start my tomato seed in a shallow box there, and pot them in little 2½-inch pots, later transplanting them to the frames outside to get strong and hardy. In this way I get ripe tomatoes early in June. The egg plants and peppers, too, are started there in March and potted off.

Almost any farm garden could have such a little house for the early plants and the flowers, and it is far more convenient than stooping over a frame or hotbed in the cold outside. One can also make sure of the temperature. The little boiler is filled up with coal at bedtime, after getting the pipes hot, and the draft slowed down. No matter how cold, I never look at it till the next morning and always find it all right.

Devoted entirely to early vegetable plants, a greenhouse as small as this will furnish plants enough for twenty-five sashes on the frames in spring. It is always a great pleasure to get ahead of others with the early garden products, and in my case I grow a great many tomato and egg plants ,etc., that meet with

ready sale and about pay the expenses of growing my plants and flowers. I have grown cucumbers in winter and tomatoes and snap beans in mid-winter, and have sold the tomatoes for 25 cents a pound and the cucumbers from 75 cents to $1 per dozen. For lettuce we do not need the heated houses they use in the North because we can grow it just as well in the cold frames under glass, but tomatoes and cucumbers and snap beans need a warm house.

With such a little greenhouse and plenty of sashes on the portable frames such as I have described one can do much to keep the garden profitably at work all the year round. Then by gradually learning the use of a heated glass structure one may find that it will pay to build larger and grow some forced products that will sell profitably.

Few people in the South realize the vast extent in which vegetables are forced in winter in the North. All along the Lake Shore region in Michigan, Illinois, Ohio and New York there are immense ranges of greenhouses devoted to the growing of lettuce, cucumbers, tomatoes, etc., in winter. Talking with one of the growers at Cleveland, Ohio, who has twelve acres, of which six are covered with heated glass structures, he told me that his gross sales from those twelve acres amounted to $30,000 annually, and after paying the heavy expense of heating six acres by steam, and paying a force of skilled hands, he cleared $10,000 a year. Some day this business may develop in the upper South, where the local conditions are far better than in the North, because we have more sunshine in winter and less cold.

Garden Implements

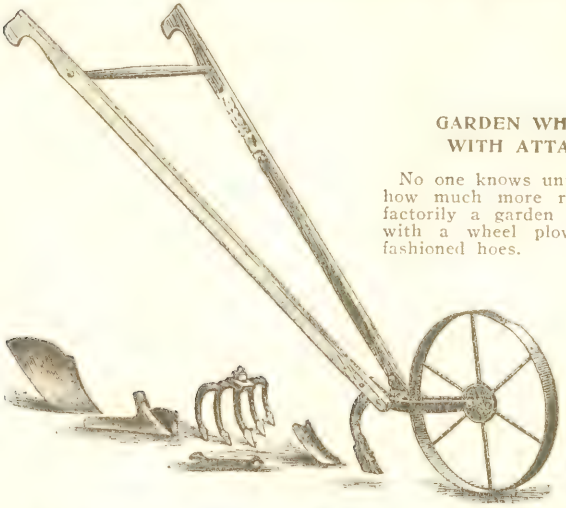
Out in the general truck patch where the Irish and sweet potatoes, cantaloupes and watermelons are grown, we can use the horse or mule and the usual farm implements. But in the garden proper we plant too close and keep the ground so continually occupied that there is often no room for the horse.

In my garden the vacant spaces only come here and there and are soon dug up again and replanted. Then, too, I cover the whole soil with manure in the fall and in the spring add

liberally of acid phosphate sowed broadcast. Hence, we must make every foot pay, and cannot have room for any four-footed animal.

Even when grown by the acre, there are some crops, like onions, that do not pay to plant wide enough for horse cultivation, since the heaviest sort of fertilization is demanded and the onion crop is one that demands that the grower get right down on knees and constantly pull every spear of grass and every weed from the rows by hand.

Therefore, we need hand implements in the garden, and these are now so plentiful that no one can afford to garden with



GARDEN WHEEL PLOW WITH ATTACHMENTS

No one knows until he has tried it how much more rapidly and satisfactorily a garden can be cultivated with a wheel plow than with old fashioned hoes.

the old-fashioned hoe. The garden plow, with a single wheel, is a very useful implement. It is simply a little plow with a wheel ahead, and is also very useful in running out rows for planting, and one can usually get expert enough with it to run a straight row without a line.

Then there are garden seed drills which do very good work. Some of these used by onion growers sow two rows at once. Others are combined machines being drills and cultivators both.

My own preference is for a drill that is used for drilling alone, and while the two-wheel cultivators are good, we can run closer to the rows and do better work with a cultivator having one high wheel. I have found that the low wheels will sometimes push in light and well-prepared soil instead of turning.

I have used the Norcross cultivator hoes several years, and while I have a two-wheel cultivator, I find that I am more apt to use the cultivator hoe, which now has been attached to a wheel after the style of the garden plow. With the handled cultivator hoe, one works backwards pulling it, and hence leaves no tracks as in pushing the wheel cultivator.

I use the garden plow always for laying off rows and seldom use a garden line, as I can usually sight and run a straight row. If you want to have a real garden and one that it is a pleasure to cultivate, do not depend on the old cotton hoe, but get the improved garden implements which will enable you to do the work easily and in far less time than with a hoe.

II.—HOW TO GROW THE VARIOUS VEGETABLES

Artichokes

THERE are two very different species of plants grown under the common name of artichoke. Cynara Scolymus is the Globe artichoke. It is a hardy perennial plant, which is increased either by suckers or seed. The part of the plant eaten is the unopened flower head. The other species is Helianthus Tuberosa, called Jerusalem artichoke. Its tubers resemble to some extent those of the Irish potato, and are often made into pickles, and more generally planted for hogs to gather in winter. Patches of these are often found as weeds in old gardens.

Asparagus

From time immemorial the practice has been to sow seed of asparagus in nursery rows and transplant them to the permanent bed after one year's growth. The transplanting of any plant is a check to its growth, and retards to some extent its development. I proved many years ago that the transplanting of asparagus roots is not only needless, but retards the crop a year, at least. Then it is far more costly to buy, or grow, roots for transplanting than it is to grow the plants from the seed right where they are to remain.

One reason for the general practice of transplanting has been the idea that the roots must be very deep in the ground, so that the shoots can be cut well below the ground with a long white portion. But the consumers have found out that this asparagus, partly white, is always hard and tough below the ground, and the demand has increased for the tender green shoots, which we all know are tender.

It is well, however, to get the roots well into the ground since in their growth the tendency is to get nearer and nearer the surface. But it is far cheaper and better to grow the crop from seed sown right where the bed is to remain. It is better because you can get cuttings from the undisturbed roots a year sooner than you can from the transplanting. A good deal has

been written about varieties of asparagus, but the main thing in getting fat shoots is heavy manuring. Feed, more than variety, makes the asparagus good. It will grow after a fashion in poor soil, but will not make big stout shoots.

Being a permanent crop, occupying the ground for many years, the location of the asparagus bed should be at one end of the garden out of the way of the annual crops and along with the rhubarb and other perennial crops. For an ordinary family two or three rows about 50 feet long will furnish an abundance in season.

Prepare the bed by very deep breaking, stuffing with stable manure and acid phosphate very liberally. Then make trenches 15 inches deep and 3½ to 4 feet apart. Fill these half full of fine well-rotted manure. Cover with 1 or 2 inches of soil and sow the seed thinly in rows in February or March.

As the plants get a few inches high, thin them to 2 feet apart in the rows, and gradually work the soil to them as they grow, till level. Keep cleanly cultivated all summer, and twice apply a side dressing of nitrate of soda at the rate of 150 pounds an acre. In the fall cut off the dead tops, and cover the whole bed with stable manure, reinforced with acid phosphate, and when potash is available add a good dressing of kainit.

In the spring dig all this in and cultivate as before and fertilize. The next spring you can begin cutting. In fact, I have cut a little of very good size the first spring after sowing the seed, but not much should be cut then. Every fall cover the bed with the manure and acid phosphate, and kainit, when the latter is to be had. Stop cutting by June 10th and then cultivate clean and fertilize to get strong crowns for the next season. After the second season many shoots will appear that make seed, and in the fall it is best to cut the tops and burn them so that there will not be a growth of volunteer plants to thicken up the bed.

As to varieties, the only choice is one that is less subject to blight than others, and I have found the Palmetto more resistant to the rust or blight than any other. If blight appears, spray with bordeaux mixture every spring before any signs of the disease appear. And always remember that heavy feeding and clean cultivation are essential to getting big asparagus.

There is an old idea that salt is very useful on asparagus. I suppose this comes from the fact of its naturally growing along the salt water. But if you can give it some kainit every fall that will carry all the salt that may be of any use. Without the kainit, it may be well to use some salt in the fall to aid in dissolving plant food for the spring.

Beans

Bush Beans—There are a great many varieties of snap or string beans offered by the seedsmen, but two or three sorts will be all that are needed in the family garden. Beans, being tender, are better planted after the soil has gotten warm. But I always take some risk by planting a row early in April. Of course, in the lower South they are planted earlier, but where liable to returns of frost in spring it is better to postpone the general planting till there is no further risk on this account.

For the earliest, I plant a row of the Black Valentine. While there are better varieties, this one stands more chilly weather than any I have tried. If frost threatens after the beans are up, I take my garden hand-plow and throw the soil over them till the cold passes, and then rake it off.

It is a good plan in planting the earliest beans to throw up east-and-west ridges and plant the row of beans along the south side of these. The ridges will then shelter them from the cold winds. In a garden where stable manure has been used freely, the only fertilizer the beans will need is some acid phosphate. Be sure to get healthy seed from a first-class seedsman, for there are a great many seed sold that are affected with anthracnose.

The best green-podded bean I have tried is the Burpee Green Pod Stringless. In my home garden I plant a row of these 50 feet long and then another row as soon as the first planted row is up, and so on during the whole summer till the middle of August, so as to have a regular succession, and plenty of green pods when frost comes, which can be canned or packed down in brine in stone jars for winter use. A pint of seed will plant a 50-foot row. I make the rows 2 feet apart.

Some like the yellow or wax podded varieties. Of these

the Celestial is one of the best. It keeps bearing longer than most varieties. The Wardwell wax bean is also good.

Pole Beans—There are a number of good varieties of snap beans that need poles or some other support. I grow these on chicken wire netting which is attached to posts at the ends and middle of the rows. One of the best varieties is the Berger Green Pod Stringless. If the pods are gathered promptly and not allowed to ripen, this variety will bear clear through the summer till frost. The pods are flat and the seeds are white and are good when dry. Kentucky Wonder is also a good variety.

Bush Lima Beans—The first of the bush lima beans originated in Campbell County, Virginia, and was afterwards sent out by Henderson and Company as "Henderson's Bush Lima." This variety belongs to the small lima or butter bean class. It is earlier than the pole variety and can be grown just like snap beans. Since the appearance of the Henderson Bush Lima Bean, there have been a number of varieties introduced. The best now on the market are varieties of the potato lima, and the latest and best is the Fordhook Bush Lima Bean. I plant these in rows 2½ feet apart and drop the seed 6 inches apart. This variety makes large pods of very large beans when green, though the dry seed look small. They are continuous bearers, and usually are full of bloom and green pods when cut down by frost.

Pole Lima Beans—The large white lima bean is generally rather unproductive in the South. The small lima, or butter bean, is far more prolific and to my taste a better bean. There is another class of the lima beans, the large, thick-seeded sorts, or potato limas. Of this class the Dreer is best. The common method of growing these beans is to set poles for them to climb on, but I prefer to use the chicken wire netting. A 5-foot width of this stretched to posts with the lower edge a foot from the ground will give plenty of space for the beans, which are planted a foot apart.

Beets

Early Beets—Those who have frames and sashes can have beets very early. After cutting the Christmas and New Year's crop of lettuce from a frame about January 10th, I add more fertilizer to the soil and sow Egyptian beets and scarlet turnip radishes in rows 6 inches apart. Attention must, of course, be given to airing in sunny weather, and if the single-glazed sashes are used there should be some means for covering the sashes on very cold nights. Pinestraw will answer very well for this if well cleaned off after the cold passes. The radishes grow fast and soon come off so that the beets have the foot rows. Then by the first of March the frame can be removed to another place to be used for hardening off the early tomato plants. The beets will then stand any frost we are apt to have, and you can be pulling beets about the time other people are sowing.

Then for planting early beets in the open ground, use a high-grade fertilizer in the furrows and bed on it. Flatten the beds slightly and sow the seed thinly. Sow in February, and if not caught by a freeze in the seed leaf, they will stand the frost after they get the rough leaf. For this sowing I prefer to use the Eclipse and the old Bassano. The Bassano is a light-colored beet and has a big top, and hence is not preferred by the market growers. But it is the sweetest beet grown. The Eclipse is a good red. The Egyptian is the earliest, but soon gets poor in quality, hence I use it only for sowing in the frames.

Late Beets—For winter use the seed should be sown about the middle of July. At this time I use the blood turnip beet of a good strain or the Half-Long Dark Blood. Use commercial fertilizer only, and use it liberally, for stable manure is apt to cause beets to grow forked. The late beets are planted in rows 20 inches apart; and in the late fall I throw a furrow to each side of the rows and let them remain where they grew all winter, taking them up as needed.

Brussels Sprouts

This is a plant of the cabbage family which makes an open head and a tall stalk, and the whole stalk is lined with little

heads about the size of a small walnut. They are very nice after frost has struck them. In the North they can be grown for summer use, but after repeated trials I have found that it is useless to try to head them in summer in the South. Hence the best time to start them is to sow the seed in late July, and transplant like late cabbages or collards. Then the little heads will be ready in November.

Cabbage

Early Cabbage—While there have been many varieties of extra early cabbages introduced by seedsmen under various names, the standard early cabbage is still the Early Jersey Wakefield. A somewhat later and larger variety has been selected from this and called Charleston Wakefield. Recently there has been an early cabbage, with a more rounded and dome-shaped head, introduced from Denmark under the name of Copenhagen Market Cabbage. This is about as early as the Charleston Wakefield and somewhat larger in the head. But it has been found that this variety is not suited for fall sowing and wintering over for spring heading, for it will invariably run to seed in spring instead of heading. Hence the best way to grow this variety is by sowing the seed in a cold frame under glass in February and using it as a succession to the Early Jersey Wakefield.

The so-called "frost proof" plants advertised so extensively are simply fall-sown plants wintered in the South for spring sales. Formerly it was a common practice north to sow the seed of the early Wakefield the middle of September, and transplant the plants thickly into cold frames to winter over for spring setting. Now that they can be wintered more cheaply in the South this practice has largely been abandoned.

I usually make two sowings in the fall, one about the middle of September and another in early October. In a long, late growing season, the first sowing may get too large; for while we want good plants we do not want overgrown ones which will be apt to run to seed in the spring.

For growing the plants we need light, well-drained and fertile soil, and need to use manure or fertilizer liberally in the

furrows. Make the furrows 3 feet apart, and use in them a fertilizer high in nitrogen and phosphoric acid and very little potash. Use this at rate of 1,000 or more pounds an acre. Then bed on this and run the furrows and the beds east and west. Run a furrow through the bed and set the plants 15 inches apart in this open furrow, being sure to set them deep enough to cover the whole stem, for if the stem bursts as a result of frost the plant will be worthless even if it lives.

I have found that this setting in open furrows in November is better than setting on the south side of a ridge, as has been the practice, for in that position the warm spells in winter will excite the plants into growth, and a return of cold may kill them. What we want is to keep them dormant till spring. Then the plants set in the open furrows will be found fairly on the surface when the soil is worked away from them and cultivation begun. Then in spring, after the soil is leveled, an application of nitrate of soda alongside the plants when dry, and not touching the leaves, will greatly promote a rapid growth and early heading.

Summer Cabbage—Sow seed of the Copenhagen Market Cabbage in early February in a cold frame under glass or cloth, and set the plants as early in spring as the soil can be worked. Use the same heavy fertilization in the furrows and bed on it. Then flatten the beds and set the plants about 18 to 20 inches apart in 3-foot rows, as they need a little more room than the Early Wakefield. Then for still later use sow seed in the open bed early in spring of the Fottler Brunswick Cabbage. This is a very short-stemmed drumhead which will, under good cultivation, make heavy heads in September. This planting will need soil naturally moist and should never be allowed to suffer from lack of moisture in summer.

Winter Cabbage—Contrary to the general opinion we can grow good, large-headed cabbages in the South when properly attended to. Sow seed of a good strain of the Late Flat Dutch cabbage the middle of July. Then see that the seed bed never lacks for water, but keep the plants growing well and get good strong plants. Set these in late August in rows 3 feet apart and 2 feet apart in the rows. Moist bottom land will be a favorable location for them or land that can be artificially irrigated, for

plenty of moisture is essential to success. In fact, collards grown in the same way will be of a far superior character to those planted earlier and allowed to take chances and run up great stalks and poor heads. Rapid cultivation is essential, and helping with nitrate of soda is also needed. These, in order to keep well, should head not earlier than late November or early December.

There is never sufficient cold to damage cabbages before some time in December. When real cold threatens, turn the heads of the cabbages over towards the north, and then pile the earth over the stem and the lower part of the head, leaving the top exposed and sheltered from the winter sunshine by being towards the north. They will keep very well in this condition, as the stem and the lower part of the head are the tender parts. The heads can be cut during the winter, and the stalks left, as these will sprout in the spring and make early greens for boiling.

Cantaloupes

These are now very largely grown for shipment north, especially by truck growers on the Peninsula of Maryland, Delaware and Virginia, where thousands of acres are annually planted. The practice in this region is to plow and prepare the land early in January, and run out rows 5 feet apart. These furrows are then half filled with stable manure brought on cars from New York City. This manure is then allowed to lie and rot till planting time in April. Then about 500 pounds of high-grade fertilizer per acre is added and bedded on, the ridges slightly flattened and the seed drilled in on them with a garden seed drill.

When a good stand is secure the plants are thinned to about 20 inches apart. For additional fertilizer about a tablespoonful of nitrate of soda is scattered around each hill. To avoid danger of injuring the plants this should be done when the leaves are dry. The crop is then cleanly cultivated till the vines are in the way. As the melons form, the whole field is sown to crimson clover to make a winter cover after the crop is off.

In garden culture I have found it best to give the whole

area a heavy covering of manure in the late fall. Then in spring in planting melons or cucumbers, I run out furrows and use raw bone meal in them at the rate of about 1,000 pounds an acre. I then bed on this with my garden hand-plow, and sow the seed in a row, thinning out to 20 inches in the rows. I find that they do a great deal better with the broadcast manuring than by having a body of manure immediately under the plants, which often interferes with them in dry weather. But since putting sprinkling pipes over my garden I am independent of the rains. The cantaloupes grown by the marketmen are universally of the Rocky Ford type. The strain known as Burrell's Eden Gem is most commonly used. The cantaloupes are shipped in crates known as 45's—that is, they hold just 45 cantaloupes of the average size. The larger ones called Jumbos are shipped in the same crates but in smaller number, of course. This variety is also good for family use, but there are also other desirable varieties for the home garden. Personally, I have a liking for the salmon-fleshed varieties like Paul Rose, Osage, Emerald Gem and Tait's Ideal. The Emerald Gem has dark green skin and very thick orange-salmon flesh, and is one of the best varieties.

The earliest cantaloupe is the Jenny Lind. It is a small melon ribbed and flattened at the ends and often with a sort of button on the end. It is largely grown by the New Jersey growers. It is of fine eating quality. The Montreal Market is the largest of cantaloupes, often weighing 18 to 20 pounds. It is largely grown in hotbeds in Canada and imported to this country at a high price in late summer. I have grown it here, but have never found it of good quality.

Never let a cantaloupe stay on the vine to turn yellow, but pull it as soon as the stem starts easily from the vine. Pulled before this, they will not sweeten well, while if allowed to get yellow they lose flavor.

Carrots

Carrots are not so much grown in the South as they should be. The large varieties, grown for stock feeding, are very useful in winter where the farmer has no silo, helping greatly in keeping up the winter milk supply and adding color to butter

in winter. The shorter and earlier varieties vary from the little forcing sorts (which can be grown in cold frames in spring like radishes), on to the half-long, stump-rooted varieties for winter use.

These last, of which the best is the Danvers Half-Long, are sown in rows 16 inches apart in the garden in late June or early July. Thin to 3 inches apart in the rows and in the fall let them remain where they grew and they can be dug for use all winter, though the frost may destroy most of the tops. They are nice in soups and boiled as a table vegetable. These, like other root crops, make smoother and better roots when well supplied with commercial fertilizer rather than stable manure, which is apt to cause them to grow forked, unless the manure is very old and fine. For stock feeding grow the Long Orange variety in the open truck patch and plant wide enough apart for horse cultivation.

Cauliflower

To grow cauliflower successfully it must mature very early in spring or very late in the fall. If the spring plants do not head before the weather gets hot they will seldom head at all. In the lower South, the seed can be sown in the fall, just as we sow early cabbage seed, and set out to head in the spring. But in the upper South, the plants do not stand the winter as well as cabbages, and for this reason need to be grown in frames. I believe that our market growers who use frames for lettuce growing could make the cauliflower more profitable than lettuce by setting the plants in the frames in the fall and protecting them either by glass or cloth.

I have grown cauliflower with perfect success under glass sashes. My frames were the usual 6 feet wide frames with sashes 3 x 6 feet. I planted six cauliflower plants to each sash and filled in between them with lettuce for heading at Christmas. After the lettuce was cut out, the cauliflower plants were given clean cultivation and some nitrate of soda sprinkled between them. By the first of March they were getting up to the glass and were gradually inured to the air, the sashes being removed entirely by the middle of March and transferred to other frames for hardening off the early tomato plants. By this method the cauliflower headed well in April and early May.

This gives a treble use for the glass and a profitable crop of both lettuce and cauliflowers. The difficulty in getting a late fall crop in the open ground is the carrying of the plants through the hot weather. The best plan will be to have the plants grown in the North and set them in September in soil made very rich and naturally retentive of moisture. When well grown they can be headed in November and make fine heads.

Cauliflower seed is mainly grown in Denmark, and the variety known as Snowball is the best and earliest.

Broccoli—For the fall crop the plant similar to cauliflower called "Broccoli" is often used for home consumption. But it is not adapted to shipping, because the heads do not keep like those of the cauliflower, but wilt and get bitter after cutting.

Celery

The cultivation of celery varies with the climate. In the North, as at Kalamazoo, Michigan, truckers can grow celery, by starting the plants early in hotbeds under glass, and mature it in summer and early fall. This cannot be done in the South. Then in the far South, as in Florida, the crop is grown entirely as a winter crop from fall-sown seed. In the middle and upper South about the only celery crop available is that which comes into use about Christmas and New Year's.

To grow this crop, sow seed on a well-prepared bed on lines marked out on the surface about 6 inches apart. Sow in early May. Merely pat the seed in with the back of a spade, but do not cover. Then cover the bed with fertilizer sacks and water well on these. This will retain the moisture at the surface and prevent crusting. Then, as the seed germinate, the sacks must be lifted up gradually and finally removed, after which the plants must be kept clean of weeds. As soon as the plants are large enough to handle they should be transplanted to another bed in similar rows, but set 2 inches apart, to get strongly re-rooted. If the tops grow too strongly they can be sheared somewhat. This will give strong plants for setting in late August.

In most places celery is planted in single rows 4 feet apart and each row earthed to itself. But in the South the best method is to use what is known as the "Baltimore bed method"; for when grown in single rows it is necessary to take up the plants and finish the blanching in trenches, while the bed method involves no lifting till the celery is taken up for use.

I always plant celery as a succession crop after some early crop like cabbage, beans, etc. If the soil has been heavily manured for the early crop I would use only acid phosphate and cotton seed meal mixed equally for the celery crop. For setting the plants, first prepare a board a foot wide and 6 feet long with the ends accurately squared. Cut notches on both edges of this board 6 inches apart. This will make eleven notches. Then stretch a line taut alongside the bed to be planted. Set the planting board square with this line at one end, and set a plant at each notch. Then move the board to match with the last set plants and set another row, and so on till the whole bed is set. Where more than one bed is to be planted, leave a space of 8 feet between the beds for earthing. You will now have a bed with plants set in rows across the bed a foot apart and 6 inches in the rows. All to be done now is to keep the bed well cultivated and clean of weeds and grass till the time comes for setting up or handling the crop. This is done when the outer leaves grow heavy and are inclined to fall over.

Then we prepare two cords about ten feet long with a peg attached to each end. Set a peg at the end of the first row and take a turn of the string around each plant in the row to hold the leaves up, and stick the other peg at the far end. Treat the second row in the same way. Then shovel in soil between these two rows and pack it close to the plants to keep the stems erect. Go over the whole bed in this way.

Then as the nights get cool you can commence the earthing. Put soil between the rows just so as to keep the growing centre of the plants above the soil, but take care to get no soil into the head. Carry up the earth on the sides of the bed 6 inches beyond the ends of the rows, making the bed full 6 feet wide. Continue the earthing as the plants grow, taking care never to work in the celery when the leaves are wet. Finally,

by the last of November or early December, when the weather promises to get really cold, cover the entire bed with earth 6 inches deep, and then cover it thickly all over with pine straw, and you can take out the celery as wanted in winter.

Chard

This is a variety of beet which makes an immense growth of tops, but no edible roots. They are planted early in spring and are in use all through the summer. I sow them in rows rather thickly and as soon as the leaves are large enough I thin them out and use the thinnings for greens and no one could distinguish these young leaves from spinach. Thin them to 6 inches apart and then all through the summer the outer leaves may be pulled and the blades of the leaves boiled for greens. The leaf stalks, which are nearly as large as rhubarb, can be cooked and served like asparagus, thus getting two nice dishes all summer from the same plant. There are a number of varieties, but I have found that the Lucullus is the best.

Collards

While I have no sort of objection to eating well-grown collards, I prefer to grow good hard-headed cabbages, and these can be grown in the South, as I have shown, by sowing the seed at the proper time and giving the crops the richest of soil and abundance of water during growth. Collards will stand more abuse, however, than cabbage, but they thrive better if given as good cultivation and attention as cabbages.

Started in July you can make short-stemmed and thrifty plants by late November, which will keep better in winter than the earlier planted collards. Treat them in the fall just as I have advised for late cabbage. That is, turn them over with head to the north and bank the soil over the stems and base of the head, and they will blanch nicely for winter use.

Like all the cabbage tribe, collards are best when well fed. Manure heavily and give some nitrate of soda to urge a rapid growth, and they will be far superior to half-starved, poorly cultivated plants. But if you will grow some Drumhead Savoy cabbage I do not think that you will want any collards.

Corn

The early varieties of sugar corn seldom amount to much in the South. In fact, sugar corn in general does poorly in the South because people fail to grow their own seed. The corn sold by the seedsmen is largely grown in Nebraska and other northern localities, and corn of any sort seldom does well at first when removed far south of the locality where produced. There is no difficulty in growing the later sorts of sugar corn in the South when acclimated, hence it is always best to mature seed at home and get it acclimated. This can seldom be well done with the early crop because it is usually so badly infested with boll worms, making it hard to get good ears for seed. But a crop planted the middle of June or even in early July can be matured clear of worms and will make the best seed for home use in the South. The plants gradually attain a greater size and vigor, yet do not mature so early as seed from the North.

For early use I do not plant sugar corn, but use seed of the Norfolk Market corn. This is an improvement on the old Early Adams corn, making longer ears and just as early. It is a very early dent corn, in fact, and can be profitably used in field planting, when it is necessary to plant very late.

Every spring I plant a little of the early sugar corn like the Golden Bantam, because of its very fine quality, though we get very little of it and very small ears. The Black Mexican sugar corn generally does fairly well and is early. This corn is a dark purple color when ripe, but pale pink when ready for the table. Plant the Norfolk Market corn, follow with a little of the Golden Bantam and then plant successive crops of the Country Gentleman, Stowell's Evergreen and Kandall's Giant. The latest and largest sugar corn is the Egyptian.

In my garden, as fast as the ears are used, I pull out the stalks and set them aside to cure, thus have the ground cleared of stumps and ready for some later crop.

Cucumber

The practice of the large truck growers, in growing cucumbers, is to prepare the soil in early winter, run out furrows 5 feet apart, fill them half full of stable manure, and let it lie

and rot till spring. Then they add 500 pounds of high-grade fertilizer per acre and bed on it. The beds are slightly flattened and the seed put in with a garden drill. When a stand is secured they thin them to two plants in a hill 20 inches apart, and scatter about a tablespoonful of nitrate of soda around each hill, cultivating clean till the vines are in the way. As cucumbers form, they sow crimson clover all over the field for a winter cover.

In my garden I adopt a somewhat different method. The whole area is well covered with stable manure in the late fall and let lie till spring, when it is turned under. Then, in planting my cucumbers and cantaloupes, I make hills 3 x 4 feet apart, work into the soil a big handful of fine bone meal, make up the hill, plant plenty of seed, and thin out when safe from bugs.

The striped and spotted beetles are usually on the watch to attack the plants as soon as they get above ground. To disarm them, I keep fine bone meal dusted over the plants. Any fine dust will check them. They can also be killed by spraying with lead arsenate mixed at rate of 1 pound of lead to 30 gallons of water. Then the plants are cultivated clean; and where the borers are apt to attack them, spray with the lead arsenate till the cucumbers set and are partly grown.

For the family garden the Davis Perfect is best. Market growers mainly use varieties of the White Spine like the Klondyke. The Davis Perfect is slightly longer and not so thick, but of a very bright dark green color. For a pickling crop I plant in late June and gather the cucumbers when half grown. In gathering cucumbers always cut them from the vines, leaving a small piece of stem. Never pull them from the vines.

Egg Plant

Though the egg plant is especially adapted to Southern cultivation, it is rarely seen in home gardens in the upper South, though an important market crop in the lower South, as in Florida and Louisiana. It is a very tender plant and should never be started as early as we start the early tomato plants, for it is seldom safe to put them in the open ground till after

the middle of May. Early March is time enough to sow the seed in a hotbed under glass sashes or in shallow boxes in the greenhouse or window. Large market growers use a hotbed and transplant the plants, as soon as large enough, to a fresh hotbed to grow strong for later transplanting.

My own practice in growing a supply for the home garden is to sow the seed in March in shallow box of rich compost in my greenhouse. Then, as soon as they have made a pair of rough leaves, I set them in pots of the 2½-inch size. When these are fairly filled with roots, I transfer them to 4-inch pots and grow them on strongly so that by planting time I have stout plants with leaves as large as my hand. I never try to harden them by setting in a cold frame, as I do tomato plants, for they get stunted in this way. Keep them growing fast till the soil is finally warm and then turn them from the pots with the ball of earth entire, and they grow off without check.

The earliest and most prolific variety is the Black Beauty, but in my experience it is the hardest to get started and to get to grow off rapidly. Maule's Excelsior is a stronger growing plant and the New York Improved Spineless is also a strong grower. I usually sow seed of one of these at the same time with the seed of the Black Beauty, as they make larger fruits than the Black Beauty, though rather later.

It is always best to let a fine specimen of each ripen and save the seed, for I have always had better success with home-grown seed than those from the seedsmen.

Endive and Chicory

Endive belongs to the chicory family. It is generally used as a hot weather substitute for lettuce. There are two varieties, the green curled and the white curled, or self-blanching. The seed is sown in the open ground in early spring and the plants transplanted into beds 8 x 10 inches apart. When the heads are well grown, they are blanched by tying the leaves up loosely when dry. Or, they can be covered in some way to make them blanch. Some merely lay a shingle on the head for a few days. I employ conical paper caps, which are also used as plant-protectors in the spring. Setting these over the heads soon causes them to blanch, making them less bitter.

The true chicory, called witloof or French endive, is grown from seed sown in early spring and allowed to grow till November, keeping it cleanly cultivated. It is then taken up and set in trenches 16 inches deep and the soil packed to them and covered with a thick layer of manure. In about four weeks the crop will be ready to lift and will be well blanched. Endive and chicory are eaten raw like lettuce or boiled as greens.

Herbs

Sage—The most commonly used seasoning herb is sage. It is far better to grow sage from seed every year than to keep old bushes in the garden. In March sow the seed in a well-prepared seedbed, and when the plants are of good size, transplant them, after some early crop is off, in rows 2 feet apart and 1 foot in the rows. Then, in late summer and fall, the entire tops can be cut, for they will all be tender and can be dried in the shade for winter use. If the plants are kept over they will run to bloom the next spring and the crop will be smaller. It is better to throw the old plants away and grow again from seed. What I have said here applies to the old-fashioned sage. But we now have a variety known as Holt's Broad Leaf, which never blooms or seeds. This is grown only from cuttings or division of the old plants. The leaves are much larger than the old variety, and the plants can be given a permanent place in the garden, cutting them down to the ground in early spring so that the young growth will all be tender and clear of hard stems. Cuttings of the young growth, set in a pan of wet sand in a window in early spring, will root easily and the plants can be potted to grow strong for setting in the garden. Or the old plants can be taken up, divided and reset.

Thyme, sweet marjoram and other herbs will live for years in the same place, but are really better grown annually from seed.

Dill, the leaves of which are used in pickles, is a hardy biennial plant. It grows from seed one season, blooms, seeds the second season and dies. Hence the seed should be sown in alternate years, or annually.

Fennel is similar to dill and of the same duration.

Horehound is a hardy perennial and a bed of it can remain in the same place for a number of years. The same is true of *lavender,* which housekeepers value for placing in the bureau drawers because of its fragrance.

Horse-Radish

While horse-radish is a perfectly hardy plant and will live in the same spot from year to year, it is only well-grown by treating it as an annual. The roots are at their best when of one season's growth. The crop is grown from cuttings of the side roots about 4 inches long. These are cut square across at the top and sloping at the base, to prevent setting them upside down. These cuttings are planted by punching holes and setting them straight in the soil. A good place to plant these cuttings is between rows of early cabbage. Then, when the cabbage are cut, the horse-radish can be cultivated the rest of the season, and dug in the fall. At this time the side roots are trimmed off, tied in bundles and buried for planting in the spring. The crop needs heavy fertilization to make good straight roots.

There is a new variety from Bohemia called Maliner Kren, which is the best variety grown. Any of the leading seedhouses will supply the cuttings in spring, and the earlier they are set the better.

Kale

Kale is very extensively grown in the Norfolk section for shipping north in winter. The Dwarf Curled Scotch kale is sometimes grown like late cabbage and collards. The plants are set in August and make very large spreading heads of prettily crimped leaves. These are good for boiling after touched by frost, the plants being quite hardy. Then, the still more hardy Norfolk curled kale is also grown and is of better quality than the Scotch. Some seedsmen catalogue the Green Curled German kale as very hardy, but I have found that sown in rows along side the Norfolk kale it was killed in winter, while the Norfolk kale survived. Dreer's Imperial Long Standing kale is of the Scotch type, beautifully curled and very hardy. Sown early in summer and transplanted and grown like cabbages, it will furnish greens all winter.

Kohl-Rabi

This is a plant belonging to the cabbage family which makes a large bulb-like swollen stem above ground and a tuft of leaves above. The swollen stem is the part used and is boiled after peeling like turnips. The seed are sown in early spring for an early crop, and late summer for a fall crop. Sow in rows 16 inches apart and thin the plants to 4 inches. Like all this class of plants, it needs a rich and heavily manured soil to make large bulbs.

Leek

Leeks make the best winter substitute for green onions, and are milder than onions. Sow the seed very early in spring, preferably in February, in a well-enriched seed bed. Grow them on strongly till July. Then, after some heavily manured early crop, transplant them into open furrows in rows 16 inches apart and 3 inches in the rows. Work the soil to them gradually and finally earth up slightly. The idea is to get long white shanks for cooking.

They are perfectly hardy and can be left all winter in the rows where they grew, and taken up as wanted for use. We use them all winter through till the young onions are ready in early spring.

Lettuce

Lettuce is one of the chief market crops of the South and is largely grown in beds under cloth, although far better crops can be grown under glass sashes.

For the first fall crop of lettuce to be grown in the open ground, I sow seed of the Big Boston variety early in August and transplant the plants, as soon as of good size, into rows 16 inches apart and 8 inches in the rows. Then, they are not allowed to suffer from lack of water, while nitrate of soda is scattered between the rows to hasten growth. This crop will head in October or early November.

Early in September sow more seed of the Big Boston, and as soon as the plants are large enough, transplant them into frames, spacing 8 x 10 inches. As they start to grow, give these, too, some nitrate of soda, being sure none of it touches

the leaves. Put the glass or cloth over the frames when the nights get frosty, and this crop will head for Christmas and New Year's. In the meantime, sow seed in a frame in October, and when the first frame is cut out, move it to a freshly manured place and plant with these plants for the late winter and early spring crop.

In late January sow seed of the Wonderful or New York lettuce in a frame and harden these off so that they can be set in the open ground in late February. This is the largest-heading lettuce grown, and will stand longer in the spring without running to seed than any other sort. In rich and moist soil it will often make heads weighing three to four pounds each. This crop needs heavy manuring and applications of nitrate of soda during its growth, for lettuce must be grown fast to be good. In the frames in fall and winter the soil must be stuffed with rotten manure and high-grade fertilizers and nitrate of soda used.

Seed of the last spring crop can be sown outside in February and transplanted to follow those from the frame, but it is rarely of use to try to head lettuce later than the first of June or in some seasons even earlier.

Cos lettuce is of upright growth and can be planted closer than the wide spreading sorts. It should be grown early in spring, and the heads will usually need tying in to blanch them. When well-grown this is a very fine variety.

Mustard

Mustard makes about the earliest of spring-sown greens, and comes in very nicely after the turnip tops. It is sown in rows in early spring and grows quickly and is soon out of the way of later crops. The White London mustard is about the best variety.

Okra

Okra is good either as a boiled vegetable or as the chief ingredient in gumbo soup. The pods are cut for use while still tender and before they get stringy. Cut at the proper stage they can be sliced and dried and kept for making soup in winter.

Plant the seed in rows about 3 feet apart in rich soil and when a stand is secured, thin the plants to a foot apart. Do not plant the seed till the soil is warm, as the plants are quite tender.

One of the best tall-growing varieties is Perkins' Long Pod. The pods are long and green. Then, there is a dwarf sort, the Little Gem, which also makes long green pods and does not grow so tall. The White Velvet or Creole has smooth pods of a creamy white color and is very productive, but it gets tough more quickly than the Perkins.

Okra pods should be kept cut even if not all used at once, as the surplus can be dried. One good plant left to mature will furnish all the seed needed in a large garden, and for seed saving it is always best to allow the first pods to mature for seed, and thus prevent the tendency of the plants to grow constantly taller in case only the refuse late pods are saved for seed.

Onions

Early Onions—Onions are best grown in a well-drained soil tending more to sand than clay. Heavy manuring and fertilizing are needed, for the onion demands a fat soil; and as the crop demands the cleanest of cultivation it is best to depend on high-grade commercial fertilizer, not less than 1,000 pounds per acre, and keep the same land in onions every year for five or six years. When grown on a large scale for market, the land should be sown in peas as soon as the crop is off and the peas disked down and turned under in September before replanting in onions.

Onions when one-third to half grown are bunched for market in the spring, and this use of the crop by the market gardener often pays better than to let them ripen. For the earliest green onions, I have generally used sets of the Norfolk Queen. The next best is the White Pearl onion. The sets are planted in September in rows 16 inches apart and about 3 inches in the rows.

Even in field culture it does not pay to plant onions wide enough in the rows to admit of horse cultivation. The entire soil must be made very rich, and close planting gives the heav-

iest crop. The cultivation is done with hand wheel cultivators. One must get down on his knees and take out every weed by hand, for this crop will not tolerate weeds in the rows. The sets are planted rather shallow, and late in the fall the soil is thrown to each side of the rows as a winter protection, to be pulled away in early spring for the bulbs to form near the surface.

The green onions will be ready to use as soon as they are as large as one's thumb end and so on till half grown. These fall-planted sets often tend to run to seed, and if allowed to do so, the bulb will be worthless. Hence, attention must be given in spring and any seed stalks that appear must be nipped out at once.

The Yellow Potato is the first ripe onion, and when grown for sale it comes on the market a good while before the general seed-grown crop of the North, usually bringing a good price. This onion never makes seed, but makes offsets at the root, which are used as sets for planting in September. A large set will make a good onion and a number of sets, while a small one will usually make one large onion. A large and fully grown onion will, if planted, burst up into twenty to thirty sets, and to produce the sets in quantity it is well to plant some large onions in the fall. In the spring the offsets can be pulled off and cleaned and bunched for green onions.

As I have said, the Yellow Potato onion makes the earliest ripe crop. It is not a good keeper and should be sold at once, if grown for sale. No attempt should be made to carry the sets over for spring planting, for they will be worthless and sprouted by spring; and being perfectly hardy, the best place for any unsold sets is in the ground in the fall. The great onion crop of the North is grown directly from seed sown as early in spring as the soil can be gotten in good order. This crop can easily be grown in the South, too, and it is far cheaper to grow them from seed than from sets. Even when planted in spring the onion sets are apt to run to seed, especially if large.

The kinds that are grown from spring-sown seed are the New England varieties such as the Southport White, Yellow or Red Globe, the Danvers Yellow Globe and the Red Wethersfield. To make good onions directly from seed the earlier they

can be sown the better. If the soil can be gotten in good order in February that will be the best time to sow in the South in general, and never later than early March. The seed are sown with a garden seed drill in rows 16 inches apart and worked with the hand wheel cultivator or the Noreross cultivator hoe. They must be thinned to 3 inches, and every weed and sprig of grass kept strictly out of the rows. When the tops turn yellowish and tend to fall over, the crop should be pulled and let lie in the sun all day, but before night spread out in a warm place under cover. Let them cure with the tops on and do not remove the tops till wanted for use or sale. Before cold weather get them into a perfectly dark outhouse and do not pile thickly. If the building is tight, what frost may get in will do no harm, for it is better to have a little freezing than to get them warm and sprouting. Where intended for sale they should be sold as soon as cured so as to get in ahead of the Northern crop.

The White Multiplier is similar to the Yellow Potato onion in that it never makes seed but increases by offsets at the root. It never makes a large onion, but makes fine white pickling onions and good onions for bunching green. It is the best keeper of any onion. I have kept them all winter in a heap on a barn floor and did not lose an onion.

Onion Sets—Sets of the New England varieties are grown from seed sown especially for this purpose. The seed are sown very thickly in rows 16 inches apart, as much as 50 pounds of seed being sown on an acre, where they are grown on a large scale. Most of the onion sets on the market are grown in Illinois, but for eastern planting the western sets are not as good as the home-grown ones, for in the East they tend to make long thick-necked scallions rather than good bulbs. Hence, if the gardener in the South Atlantic section wishes to plant sets, he had better grow them himself.

The seed should be sown in good garden soil which has been manured for other crops, but no special fertilization is used on such soils, as we do not want the bulbs to grow too large. About the size of a boy's playing marble is the proper dimension, and hence we sow the seed very thickly. Sow the seed early in April and the sets will ripen in late June. The tops are then sheared off and the onions taken up and cured.

generally in trays exposed to the sun and taken in at night. These can then be replanted in September or kept in a cold place for early planting in spring. They can be culled by using a sieve with openings large enough to let the very small ones through, and keeping the good ones in. Then the very small sets can be sown thinly like seed to make onions while the good-sized sets are planted 3 inches apart as heretofore directed.

Onions (Spanish and Italian)—The large Spanish, Italian and Bermuda varieties of onions can be grown by sowing the seed in January in a cold frame under glass sashes, and when the plants are as stout as a lead pencil in March, transplant just like sets, nipping the tops and roots slightly. These plants will make the large onions often seen in crates, each onion weighing a pound or more. The varieties for this method are the Prizetaker, Denia, Giant Gibraltar, Mammoth Pompeii and some others, as well as the white and pink Bermudas. The Bermuda onion can be grown directly from seed sown in the open ground early in spring, but are grown earlier by the transplanting method. In the lower South sow seed in September and transplant when large enough.

Parsnips

These roots are too much neglected in the South. Parsnips make a fine addition to the winter table. They can be eaten freshly boiled or the boiled roots can be sliced and fried, and being perfectly hardy they can remain in the rows where grown till wanted for use. Parsnip seed are light and chaffy, and are sometimes hard to germinate, especially in soil that crusts much. I have found that the best way to get a stand is to plant a small pinch of seed in a place about 4 inches apart in the row and make the rows 20 inches apart. Then the little bunches can be easily thinned. But do not handle parsnip leaves when wet, for if the wet leaves touch parts of the wrist usually covered by clothing, they will cause troublesome blisters.

As to varieties, there is really but one, the Hollow Crown. A variation of this called the Student differs only in having shorter roots. The general directions in the seed catalogues call for sowing the seed as early in spring as the soil can be

worked. This is all right in the North, but in the longer-growing season in the South this early sowing will result in overgrown and somewhat woody roots. Better sow in June, and get smaller but tender roots. In fact, they will keep growing in the South till mid-winter and make their best growth in the fall months. Sow one ounce to 200 feet of row.

Parsley

Every housekeeper wants parsley leaves for garnishing the dishes and to flavor soups and meats. The seed should be sown rather thickly on a border in rows a foot apart. Sow very early in spring, for the seed are slow to germinate and need the soil to be moist. A bed will run through summer, fall, winter and early spring of the second year before running to seed. Hence, it is best to sow a bed every spring to take the place of the one that is running to seed.

The more completely the leaves are curled the better, and it is therefore desirable to save seed from a plant of the most intensely curled character, and prevent any plain-leaved plants from seeding. Fresh seed is very important and it is desirable to save some in the home garden. The best variety is the Champion Moss Curled.

Peas

Peas (Garden)—Most people are fond of peas and everybody likes to get them earlier than his neighbors. All the seedsmen offer special varieties of the "extra early" peas. Formerly these were all selected strains of the old Early Kent, a yellow seeded pea. But of late years the greenish seeded Alaska type has prevailed, and while every seedsman claims to have the best strain of extra early peas, they all belong to the Alaska type. Some may be purer to type than others, but all are very much alike. I have found a variety called the Nonpareil to come in as early as any I have tried.

But the very early peas are not of as high quality as those that come in a little later and the very late ones. I always plant a few of the extra early variety for beginning, but depend mainly on the later peas of better quality, those with wrinkled

seed. Some of these are now quite early and I find that by sowing the very dwarf sorts like Sutton's Excelsior and Thomas Laxton that they come into use before the Nonpareil are all too old for use; and there are a number of the later and taller sorts that are of high quality, while the oldest of these, the Champion of England, is one of the best.

The early and dwarf sorts need no support, but the tall late ones must have something to climb on. I plant them along a woven wire fence or stretch a 5-foot width of chicken wire for them to run on. The growers who plant largely for market plant only the extra early sorts which give their whole crop at once and early, for the later peas would come into competition with the extra early ones north of us. But for home use the wrinkled seeded peas are far better and larger.

Peas do not need large applications of nitrogen, but do need plenty of phosphoric acid, and should have a liberal application of acid phosphate to supplement the stable manure usually applied to gardens. I use very fine ground bone meal and find it good.

Chicken wire of various widths is the cheapest and best support for peas or beans or any climbing plants. For the varieties of medium height the 3-foot width is sufficient, and for tall sorts like the Champion of England the 5-foot width is best. Even the extra early peas will be a little better off with a 2-foot width of the wire, though it is common to let these grow without support.

The time for sowing the extra early peas will vary, of course, with one's climate. In the light sandy soils of the eastern coast section, the time to get them in the ground is the first good weather after New Year's day. The later peas, of the wrinkled class, should not be sown so early, as they are apt to rot in the ground in cold weather. But they can be sown in late February and early March. Much later sowing than the middle of March will be liable to be caught by the hot weather and prove a failure. The dwarf extra early peas can be sown in rows 3 feet apart, while the taller ones will need a 4-foot space between the rows.

Peppers

Considerable interest has arisen in the crop of sweet green peppers which many market growers have found profitable for northern markets. For this early crop, the seed are sown in a hotbed under glass in February and transplanted to frames under sashes, like tomato plants, to harden for setting out after frost is over. For home use they are mainly desired for stuffing for pickles in the fall. Seed sown in a bed in the open will give plants that will fruit well at pickling time.

Pepper should be planted in heavily manured garden soil in rows 2½ feet apart and about 18 inches in the rows. The varieties that have been generally used are the Ruby King and the Neapolitan. The only difference is that the Neapolitan holds its fruit more upright than the Ruby King, on which the peppers hang down. The Chinese Giant has come into use in some sections, and I have grown them, but can find no advantage in them. The pods are too large and ungainly, and the plants are not so productive as the Ruby King.

A pepper somewhat newly introduced is the Pimiento, a Spanish variety. This does not have wrinkled pods like the others, but is perfectly smooth and of a bluntly conical form. It is thick fleshed and the sweetest of peppers, having not a trace of fire in it. It has become popular for canning. It is a very productive pepper, and will be likely to supersede the others as people get acquainted with its quality. By starting the plants early under glass this variety will give green pods by the last of June or early July, and plants sown in the open ground will furnish pods till frost.

Potatoes—Irish

The Irish potato crop is one of the crops that are better adapted to the outer truck patch and horse culture than to the enclosed garden. Every farmer should produce plenty of these potatoes not only for home use all the year through, but as a source of profit in his local market. I do not advise farmers as a rule to attempt truck crops for northern shipment. This is a business in itself, and demands the whole time and

attention of the grower, and the man engaged in general farming cannot give the truck crops the proper attention.

A mellow sandy loam, on which a crop of cowpeas has been grown and turned under in the early fall, and rye sown on the land in September so as to make a good fall growth and to have quite a mat of rye to turn under in February, will make an ideal preparation for the early potato crop. Some slight acidity from the organic decay will make conditions unfavorable to the scab fungus. While I would not say that acid conditions in the soil are best for the potato crop, they are less favorable to the growth of the scab, and the use of lime, while perhaps favoring a larger crop of potatoes, will also make conditions favorable to the scab, and a fair crop of clean potatoes is worth more than a large crop of scabby ones.

If some old rotten manure is available it may be profitably spread broadcast before turning under the rye, but do not put fresh stable manure in the furrows, as that, too, will encourage the scab. High-grade commercial fertilizers will make the cleanest crop, though I have made fine crops from manure spread broadcast in the fall and only acid phosphate used in the furrows in spring.

There is no early crop on which the truck growers are more lavish in the use of fertilizers, for the crop coming off early leaves a residual effect that will give a large crop of corn after the potatoes are dug, though if the future improvement of the soil is looked after it would be better to sow peas after the potatoes, and use them for hay to feed stock and make manure, and follow the peas with crimson clover, which can be turned under the next spring to make a heavy crop of sweet potatoes. Usually it is the practice to use a large percentage of potash in the fertilizer for the early Irish potatoes.

For early potatoes I would make the furrows rather shallow and 2½ feet apart. We need the early warmth of the sun and hence should plant rather shallow. Cut the potatoes to two eyes and drop 15 inches apart in the furrows, after mixing the fertilizer in the furrow by running a bull-tongue through.

Cover with a furrow from each side and at once harrow level in order to start them earlier. As soon as the plants appear, run the weeder over the field to loosen the crust and de-

stroy germinating weeds. Then cultivate rapidly with the cultivator and lay by with a plow or a broad sweep as blooms appear, hilling well.

As to varieties, the market growers in the South Atlantic region use the Irish Cobbler almost exclusively. Farther west, the Triumph is still largely grown, and some still plant Early Rose and Early Ohio. The Pride of the South or White Bliss Triumph is a good variety, and better for family use than the Irish Cobbler.

Late Crop Potatoes—It has been the practice to grow a second crop from seed of the early crop, but since the use of the Irish Cobbler has become so common it has been found that it is less adapted to this use than the Triumph or the Early Rose, and the uncertainty of the crop has led to the use of seed potatoes that have been kept over from the previous fall in cold storage.

For making the late crop it is better to use these early varieties that have been kept in cold storage than try to make a second crop from seed of the early one. While there are many very good late varieties of potatoes, as a rule I consider it better to use the early varieties from cold storage for growing the late crop, because they will not only make a good winter supply, but will make the best of seed for planting the early crop in the spring.

For a regular late potato many now use the Lookout Mountain, which I have never grown. I have found that the Sir Walter Raleigh, while not so heavy a cropper as some, is a potato of fine quality. The late crop can be planted at any time from the middle of June to the middle of July, and in the far South, even later. In fact, once, in a very late fall, I made a good crop of Early Rose potatoes that did not appear above ground till September, but frost held off that fall till December 1st.

For growing the late crop, conditions are very different from those present with the early crop. We have to look carefully after the soil moisture in the dry and hot weather usually present in late summer and fall. Hence, instead of planting shallow and hilling up I plant in deep furrows, cover very shallow till they start, and then work the soil to them as they grow

till level. Cultivate shallow and level to keep a dust blanket on the surface to conserve moisture in the soil and do not hill up to dry out. Keep the cultivator running rapidly and frequently till they bloom. This crop will grow till cut down by frost, and when this takes place the crop should be dug at once, and stored in a totally dark cellar or buried outside with earth—covering enough to keep out frost. Heat and light are damaging, and the nearer we can keep the potatoes only a few degrees above the freezing point and the darker the storage place the better they will keep.

I have grown the second crop from seed of the early crop in the following way: Let them mature and dig. Then cut them at once in halves, spread out and cover with pine straw, keeping that moist. Then plant them as they sprout and do not plant any that have not sprouted. Plant deep and cover shallow as advised above.

Careful experiments have shown that the late grown crop of the early varieties makes the best seed for spring planting. The seed potatoes grown in Maine have developed so much disease that crops grown from them are always infested with the black shank disease and may bring us the powdery mildew, a far worse disease. A late crop grown from the cold storage seed will produce a better and more healthy crop in the South.

Radishes

The early radishes are a crop for the cool spring weather. Then there are later summer varieties, but these are little grown, though useful at times. Then, too, there are the large winter sorts like the Celestial and the Red Chinese which are sown in the fall and make roots of immense size. To grow the early radishes the soil must be made very rich, for to be good they must grow quickly. The earliest crop can be grown by sowing seed early in January in a cold frame in alternate rows with early beets. These will come in early in March. Then seed can be sown in the open garden as early in February as the soil can be gotten in good order, and as the early turnip-rooted varieties soon become pithy it is better to sow again in March and again in April.

Then, if the summer varieties are wanted, sow again in early May. The winter varieties are sown in September, and if well mulched with manure between the rows they will keep good all winter.

As to varieties, the White-Tipped Early Turnip-Rooted is as good as any, and the White Strasburg and Chartier for summer. For winter the Celestial and the Scarlet China sown in September. The Celestial is a very large white radish and is excellent boiled like turnips, making a dish better than turnips. The old Chinese Rose Colored winter radish has been superseded by the Scarlet China.

Rhubarb

On dry upland in the South, rhubarb is very uncertain and apt to die out. The best variety is the Linnaeus. Plant the roots 3 x 3 feet in rich moist soil and mulch heavily with manure in spring and summer to retain the moisture and promote the growth of the crop. Rhubarb needs heavy and constant manuring to make good stalks. After four years growth in one place it is best to lift the roots and divide and replant in fresh soil.

Rhubarb can be kept in winter more easily than almost any other vegetable. The stalks are simply cut in small pieces and packed in fruit jars and then cold water enough poured in to fill the jar and the top fastened down. It keeps in this way till the fresh crop comes in the spring.

Salsify

Salsify is also known as "oyster plant," as the roots boiled and made into cakes and fried taste very much like fried oysters. They are good, too, when simply stewed. Salsify is one of the earliest crops planted in the North, but in the South should not be planted before June or in the lower South in July. If planted early it is apt to run to seed. The seed are planted rather thinly in rows 16 inches apart and thinned very little, as they will develop to full size when only an inch apart.

Salsify makes its best growth in the cool fall weather and will grow on through the greater part of the winter, being per-

fectly hardy. They need a deep loose soil so that the long roots may run down straight without getting forked. They are at their best after frost, and can be taken up for use all winter and till they start to grow again in spring. Do not take up more at a time than are to be used, for the roots will soon wilt.

Spinach

Spinach is one of the best of winter greens, and can be had in constant use from early fall till late spring. The only variety worth sowing is the round-seeded Norfolk Savoy. The catalogues offer the prickly-seeded variety, but it is little used except sometimes for spring sowing.

We make the first sowing in late August in rows 16 inches apart in heavily fertilized soil. This is for use in the fall. Another sowing is made the middle of September to keep up the supply till Christmas and New Year's.

In the upper South make a sowing early in October to winter over for late winter and early spring cutting. In the lower South make this sowing early in November.

Spinach must be grown rapidly to be good, and heavy fertilization is needed. Being very hardy, it will furnish greens all winter. In cutting, the plant should be cut entirely to the ground. The crop is largely grown around Norfolk, Virginia, for shipping in barrels north.

Squash

The squashes or cymlings commonly grown in the South are the early summer bush varieties. The hard shell or winter squashes seldom do well in the South except in the mountain section. They are popular in the North, but in the South we can do with our soft yam sweet potatoes all that they do with the winter squashes in the North—and better, we think.

The Early White Bush or Pattypan is one of the best and most generally used of summer squash. There is also a bush of similar growth with yellow colored squashes. Both are good. Then there is the long yellow crookneck squash which is also good.

Plant the summer sorts in well-manured hills 4 feet each way. The winter varieties will need as much room as watermelons or pumpkins. Squashes are apt to be attacked by the striped or spotted beetles as soon as they come through the ground. Keep the plants covered with tobacco dust as soon as they appear or fine dust of any sort. The tobacco dust is best, as it also helps the growth of the plants.

The winter squashes (Boston, Marrow and Hubbard being the best varieties) do as well in the cornfield as pumpkins do, but if planted early, in the warmer parts of the South, the squashes are apt to rot on the vines. Planted in July, they may succeed.

Tomatoes

There is no garden vegetable more generally used and cultivated than the tomato, and the varieties grown are innumerable. During the last forty years there has been great improvement made in the character of the fruit of the tomato. Before then we had large solid varieties but very rough and irregular in form. We also had a smooth tomato that was very hollow and seedy. The first effort to make a solid and smooth tomato was in the Trophy, sent out about forty years ago by the late Col. George Waring, who was generally noted as a civil engineer. He became interested in the improvement of the tomato, and announced that he had succeeded in putting the old Mexican Chihuahua tomato into a smooth skin. He called it the Trophy and advertised the seed at twenty for $5. I paid the $5 early in January and got the seed. I sowed them at once in my greenhouse, and seventeen of them came up. Then they were potted, and as fast as they grew I took cuttings, rooted them, and by planting them in spring I had 150 plants in pots. I sold eighteen of these for 50 cents each, and planted the remainder. From these I saved seed and planted a large field the following season; and the crop was a very remunerative one.

Since then we have had new varieties of tomatoes offered by the seedsmen year after year. Being interested in tomatoes I have tested most of the varieties brought out. Every season some seedsman claims that he has the earliest ever, but there

has been very little advance in earliness since the introduction of Maule's Earliest. Then came Sparks' Earliana, which seemed to be identical with Maule's Earliest, and both were rather rough in form. But the seedsmen have been at work on these, and now the Langdon Earliana is as smooth as any. Still later, the Bonny Best came out, and is a much better and more meaty variety than the Earliana, also having the valuable quality of continuing in fruit longer than the Earliana, which ripens its whole crop early and quits. The Earliana is valuable for the market grower on this account, but for the home garden the Bonny Best is now the best early tomato, being but a few days later than Earliana, and far better in quality.

For the earliest tomatoes I now use only the Bonny Best, and it not only gives me early fruit, but keeps bearing till the later sorts are well under way in fruiting. For the main or late canning crop the Stone is universally used, but for the home garden I prefer Success, Red Rock, Globe, and Mississippi Girl.

To have tomatoes early the plants must be forwarded under glass and several times transplanted to make them strong. The time for sowing is about ten weeks before the time for setting out in any locality. I sow the seed in shallow boxes in my greenhouses. As soon as they are large enough to handle, they are either transplanted to other boxes and given more room or are set in flower pots of the 2½-inch size. Later, the plants are set in cold frames under glass sashes 4 inches apart each way, and are then exposed to the air in all warm and sunny weather, so as to gradually harden them to the air, till the stems assume a purplish color instead of the tender green. I take up the plants with a garden trowel and a mass of soil, setting them in holes filled with water and pulling the dry earth around them. Treated in this way they seldom wilt at all. Then, if frost threatens, I bend the plants over and cover them with the soil till the cold passes. I once carried them through a freeze that dropped to 21 degrees in this way.

Where there is no greenhouse it is best to sow the seed in a hotbed under glass sashes, and from this transplant them to the cold frames. But do not let them get crowded and drawn up slender in the hotbed, for such plants will be little better

than those sown outside. They must be transplanted to get stout and strong. Seed can also be sown in a shallow box in a sunny window of a warm room, transplanted into another box or boxes with several inches of room, and finally set in a frame covered with cloth to harden off.

In the heat of late June and July, the early tomatoes are apt to fail and make inferior fruit. To provide against this, I sow seed thinly in the open ground early in April to get strong plants, set these out to succeed the early ones as they fail, and when these come in, I clean out the early plants. Then, I make the third sowing outside about the first of June so as to have plants that will come in with their best fruit in September and October. I also like to have an abundance of well-grown green tomatoes when frost threatens. These are then gathered, wrapped in paper and stored in crates in the cellar. Some are brought into the kitchen window every few days to ripen up, and in this way I have had a constant supply for slicing for the table till January.

I plant the early tomatoes in rows 3 feet apart and 2 feet apart in the rows. A stake is set to each plant, the plants trained up to a single stem and tied loosely to the stakes. All side shoots are kept pinched out, and in this way we get the earliest fruit. The later sowing I set 4 feet each way and allow them to take their natural growth on the ground. A good mulch of pine straw between the rows, after the plants have gotten to be a good size and before they fall over, will keep them off the ground and will help keep down the crab grass.

Tomatoes need a fertile soil but not too much nitrogen, which causes too rank a growth of vine. They need plenty of acid phosphate, and where stable manure is not available, an equal mixture of cottonseed meal and acid phosphate will be the best fertilizer.

The Colorado potato beetle will sometimes destroy the plants in the outdoor seedbed if not watched, and spraying with lead arsenate is advisable. This mixed in bordeaux mixture will keep off the leaf blight as well. (Refer to the chapter on "Plant Diseases and Insects" elsewhere in this book.) If you find a big green tobacco worm on your plants with little white sacks all over it, do not destroy that worm, for it will soon die

and the little white sacks will hatch out spotted lady bugs to lay eggs and destroy more worms, for the little lady bug is one of the best friends of the gardener.

Turnips

The rutabaga turnip and the Large White French or Rock turnip should be sown in July. Run out furrows, fertilize well, bed, flatten the beds half way, and sow the seed in a row on the bed. Thin out to 4 inches apart, as these grow quite large. The best variety is the American Purple Top.

In mid-August sow some of the early Milan turnips for early fall use. These turnips grow very quickly and are useful in the early fall, though they soon get pithy.

For the main crop, sow in September the Strap Leaf purple top, Purple Top Globe and Yellow Aberdeen. This last is one of the finest of turnips for winter use. They are best taken up and covered with enough earth to keep out frost.

For greens, sow Seven Top turnips in September and protect in winter with some green pine bushes. The Milan turnips can also be sown in late February for spring use.

Turnips are best sown in rows and thinned, but the Seven Top can be sown broadcast for greens.

Watermelons

These are more a crop for the field or the truck patch than for the family garden, for they need more room than any of the so-called garden plants. Large growers for northern shipment prepare their land early in winter and check it out 8 x 10 feet and place half a bushel of manure in each check. Then in spring they add a handful of good fertilizer and make up the hill and plant. Nitrate of soda is used around the hills as with cantaloupes, and the field is sown to crimson clover when the melons form. The variety now generally grown for market is the Tom Watson. This is a very long green-rind melon of very good quality, and has almost superseded the poor quality Kolb's Gem so long grown for northern shipment.

For home use I like the McIver Sugar melon. This is a striped melon, in shape somewhat between Cuban Queen and Georgia Rattlesnake. It is a very sweet melon and has the valuable quality of never cracking in the centre. Maule's All-Heart is also a good melon. It has very small seed, not much larger than an apple seed. The rind is very thin and the melon sweet and good.

In the South the so-called pickle worm often attacks both cantaloupes and watermelons. The preventive is to spray with lead arsenate 1 pound to 30 gallons of water and get it well under the young melons. Rust or blight also should be avoided by spraying with bordeaux mixture, and the poison can be used with this.

III.—WHAT TO DO IN THE GARDEN EACH MONTH

JANUARY

THE EXTRA early varieties of garden peas of the Alaska type should be planted the first opportunity for getting the soil in proper order. Open furrows 3 feet apart and sow the peas in a somewhat broad ribbon rather than a single direct row and cover 4 to 5 inches deep. Among the improved strains of the Alaska type I have found the Nonpareil one of the best. Do not sow the wrinkled peas so early, as they are apt to rot in the ground. The date for these will be stated later.

The Broad Windsor bean can be planted early in the month, as it is very hardy, will not stand hot weather, and hence must be gotten in early. This class of bean is not much grown in this country, but is popular in England, where they cannot grow our lima beans outside.

In the frames under glass, in soil very heavily manured and fertilized, sow seed of early Egyptian beets and early turnip-rooted radishes in alternate rows 6 inches apart. In the warmer section near the coast these can be sown under cotton cloth, but will not be as early as under glass. By the first of March, the radishes will be out, and the beets can be hardened off gradually and the glass removed to other frames to harden the early tomato plants.

Lettuce of the Big Boston variety can now be set in the frames for early spring crop. It is best not to use the same frames that have grown the Christmas crop, as there will be more disease. Have extra frames for this crop.

Sow seed of the Prizetaker onion in frame under glass or cloth. Sow rather thinly in order to get good plants. These should be about the size of a lead pencil in early March for transplanting to the open ground. These plants set in heavily enriched soil will make very large onions. The Giant Gibraltar onion is also a very large variety and can be well grown in this way.

Sow seed of the Charleston Wakefield cabbage in a frame to succeed the cabbage grown from fall-planted seed. These, too, should be large enough to set in March. Copenhagen Market is also good.

The last week in the month, prepare a hotbed with glass sashes for sowing early tomato seed. This hotbed need not be very large, for two sashes 3 x 6 feet will start plants for a considerable area in the frames for hardening them off. The time for sowing tomato seed in any locality is about ten weeks before it is usually safe for setting them in the open ground. Hence, January and February are the months for starting the seed. If you have no hotbed, you can start plants for the home garden very well in boxes of rich soil in a sunny window. As soon as the plants put on a pair of the rough leaves, transplant them 2 inches apart in other boxes and in early March set them 4 inches apart in a frame covered with cloth, where they will grow strong and can be gradually hardened off to the outer air and transplanted.

Seed of peppers and egg plant can also be grown in the same way, but it is better to defer the sowing of the egg plant seed till the middle of February, as they are very tender.

Keep the garden clear of chickenweed and the henbit—a plant with little purple flowers—as these are winter weeds and seed very early in spring. They can be cleaned out entirely if destroyed in the winter. In fact, keep the garden clean all the year round.

In the Flower Garden

Place orders for shrubbery now. A few words about the best kinds may not be out of place here.

The spirea Van Houttii, called Bridal Wreath, is simply a mass of snowy bloom in spring. Then, as soon as the flowers fade, I take my hedge shears and shear off all the blooming shoots and the bush then puts out a strong mass of shoots for the next season. This spirea makes a very beautiful ornamental hedge. We have one here that is a great show in spring and not at all ugly when not in bloom.

The common althea is one of the best summer blooming shrubs and keeps it up long after other shrubs have faded.

Mine always bloom from July till frost. There are many colors of this plant and some with double flowers. They are rapidly grown from seed. I grew plants from a pure white variety and the plants have made lilac colored flowers with crimson centre, and the plant constantly varies in this way.

Crape myrtles of course we all want. There is now a great variety of shades in the bloom from almost crimson to pure white, and one with white flowers with purple blotch on the lower petals. You can cut around an old plant with a sharp spade and new plants will start from the cut roots, which can be dug and transplanted. They may also be grown from seed, for I have grown hundreds in that way, and got some improved forms. I have had seedlings in bloom by the time they were a foot high or less. The seed had best be sowed as soon as ripe, as it is a little harder to start when kept till spring.

Spirea Anthony Waterer is also a continuous summer and fall blooming plant and its rosy, carmine flowers are very pretty. The old calycanthus or Sweet Betsy, every one wants, and while the flowers are not showy, they make it up in fragrance. Deutzias are also fine from the little dwarf deutzia Gracilis to the great bushes of deutzia Crenata, double and single.

The first thing to bloom in spring is spirea Thumbergii. The flowers are white, and even after the bloom is off the feathery foliage is very pretty.

Then, in addition to these shrubs that are hardy everywhere, we can grow many things in the South that do not thrive in the North. The magnolia fuscata, or banana shrub is small but very sweet.

In the warmer coast section the cape jessamine or gardenia thrives, and all the Chinese azaleas and the camellia japonica. The half hardy evergreen shrubs do better where shaded from the morning sun in winter. The camellia thrives from Raleigh southward as well as the azaleas. The Chinese sweet olive, too, is a hardy and attractive shrub with its little fragrant flowers. Then the holly-leaved osmanthus makes a rapid growing and beautiful shrub so like a holly that many mistake it for one.

The Portugal laurels are also splendid evergreens. Some of these have leaves so large that most people pass them for

our common magnolia. Then, too, there are eleagnus, some bushes and others trailing vines with golden variegated leaves.

Sow such slow-germinating seeds as lobelia, centaurea, salvia, etc., for bedding plants next spring.

Some of the narcissi will force very well now. Princeps, Golden Spur, and Single Trumpet Major are good. The double sorts will do better forced a month later.

If you want snapdragons for making early flower beds, sow the seed now.

If candytuft and mignonette seed are sown this month they will bloom early in the spring.

Sweet peas should also go in if not planted in the late fall. It is essential to have these early to get any bowers in the Southern climate. Make a deep trench and fill it half full of rotten manure, cover with soil, and plant the seed not too thickly, but an inch or two apart. Cover lightly till they germinate and then pull the soil to them so as to get the roots well into the soil to prevent damage from dry weather. Then give them a width of chicken wire netting to climb on.

FEBRUARY

WITH the advancing sun there is a great deal to do in the garden in February. The lettuce in the frames will need careful attention, and if you are growing it under cloth, you should expose it to the sun every mild day, for the shade of the cloth will draw the plants up weakly.

Sow seed of tomatoes, egg plant and peppers as directed in January. As soon as the soil can be worked in good condition you can sow seed of early beets, Egyptian and Eclipse being about the best for early sowing. Early French carrots can also be sown in the latter half of the month. Sow Norfolk Savoy spinach in well-enriched soil in rows 15 inches apart to follow the sowing made in October. The latter part of the month sow chard in rows like beets. This is a sort of beet that makes immense tops, which are used for greens. It is the best substitute for spinach in hot weather.

Get the early Irish potatoes in the ground by the middle of the month. In the lower South this should be done in late January or the first of February. If the potatoes are spread out in a light and warm place before time for planting, so that they start sprouts, it will increase the earliness of the crop.

The middle of the month sow the late wrinkled peas. Of the dwarf varieties that do not need sticking, the Thomas Laxton and Sutton's Excelsior are good; and for a tall pea which needs some support, the old Champion of England is unsurpassed. I grow these on a wire fence, for a 5-foot width of chicken wire netting is a good support and cheaper than cutting brush. It can also be rolled up in winter and put away, and with this treatment will last indefinitely.

The hardy weeds will be starting. Keep the garden clean.

Sow a bed of parsley. Let run two seasons and then go to seed to be followed by another bed.

Sow leek this month in the lower South.

In the Flower Garden

Plant the bulbs or corms of the gladiolus. If you have a number of these you can make a series of plantings from Feb-

ruary to May so as to have a succession of the flowers till August.

Sow seed of the annual phlox drummondii if you sowed none in the fall. Fall sowing is best, for the plants will winter very well and will bloom earlier and better than from spring sowing.

The Japanese lilies of the Speciosum type can also be planted. These are the Rubrum, Roseum and Album and the great golden-striped lily Auratum. Bulbs of the Bermuda and Japan Longiflorum lilies that have been kept in cold storage can be planted now and will make fine flowers in the open ground.

Pansy seed are best sown in late summer and set out in the fall so that they will bloom early in spring, but if none were sown then they will do fairly well sown now in a frame and transplanted later. For early flowers, make the first sowing of China aster seed. I sow these under a grape arbor, as they germinate better there. They are very easy to transplant if dropped into a basin of water as soon as lifted and set with the roots dripping wet.

Spanish and Japanese iris can also be planted now. The Japanese make wonderfully beautiful flowers, but demand a soil naturally moist, or where they can be regularly irrigated, for they will not thrive in very dry soil. German iris, too, can now be planted. Their flowers are larger than the Spanish, but not so delicate and varied.

Canna beds, that were left last fall without lifting, but covered with the dead tops and leaves, should be taken up the latter part of this month, divided and replanted. Heavy manuring will make a great difference in the growth of these, and plenty of water, too, will greatly help them. The rhizomes of the cannas will keep better in winter in the well-covered beds than if lifted in the fall, but they should be lifted in spring to prevent getting the beds too crowded. The newer sorts of cannas make gorgeous heads of bloom and are very showy.

Make provision for some roses in your garden plans and order from your nurseryman now for delivery when time to plant.

MARCH

WITH the coming of March the garden work becomes more insistent and no time should be lost. Of course, there are many things that we have suggested for February which can still be done, especially in the northern sections of the South.

In the lower South the planting of the more tender vegetables will begin, and even in eastern North Carolina one can risk some snap beans in the ground the latter part of the month. The most hardy of these is the Black Valentine, and a good plan is to run small ridges east and west and plant the rows along the south side of the ridge to be sheltered from the cold winds when small. If frost threatens after they are up it is easy to take a little garden hand plow and throw a furrow over them to be removed after the cold is past.

If you failed to sow beets and plant potatoes in February, lose no time in getting them in now.

Get the tomato plants that were started in early February into a frame where they can be protected from frost at night and fully exposed in sunny days. Set them 4 inches apart each way, and do not keep the glass or cloth over them any more than necessary to protect them from frost. We want to get them into such a hardy condition that the stems of the plants will take on a purplish color instead of green, showing that they have been hardened to the air. Of course, in the lower South where frost is over they can be set in the open ground, but in most of the South this is not safe till early April, and even then in the upper South we must look out for reverses.

When cold threatens, the plants can be protected in more than one way. I have some cardboard protectors made in a conical form which can easily be set over the plants; and I have protected them by bending the plants over carefully and covering them with soil. One March, when we had very warm weather early in the month and a return of cold down to 21 degrees on the 26th of the month, I had my early tomato plants out, but saved them in this way. The earlier we get tomato plants out, and get them to live, the earlier the fruiting will be.

Prepare the land for cucumbers, squash and cantaloupes

by running furrows 5 feet apart, and putting well-rotted manure into them and then a good application of acid phosphate. Bed on this ready for planting in early April. We plant all these in rows and thin out to hills after a stand is secured.

Bed sweet potatoes the last of the month.

Sow seed of the Wonderful and Hanson lettuce on a warm border the first of the month to make plants to set in beds later. These varieties stand the warm weather of late spring far better than the Big Boston that is grown in the frames in winter. Set in very heavily enriched soil and treat with some nitrate of soda to push them along and they will make very large heads, especially where it is practicable to water the beds. I set this crop in beds 6 feet wide, the plants 10 inches apart each way, and have known the Wonderful or Shellem lettuce to make heads that weighed four pounds.

Late in the month sow some curled endive to take the place of lettuce after the weather gets too hot for the lettuce. The endive plants can be set just like lettuce and when the heads are of good size tie the leaves together at the top to blanch the heads or wrap stiff paper around them to be held in place with a rubber band, leaving the top open.

The onion plants in the frame from January sowing can now be transplanted. Nip the roots and tops slightly and do not plant more than an inch deep, as the bulbs should form mainly on the surface. Sets of the Pearl and Silver Skin onion may be planted in the early part of the month, and even good onions can be grown direct from seed if sown early in the month in very heavily enriched soil and properly thinned later.

Make trenches, manuring them as previously described, for sowing seed of asparagus, using the Palmetto variety. Then follow the directions given in this little book and you can grow the finest of asparagus without any transplanting.

March is the best time to plant fig trees or to set cuttings for growing more. Cuttings of last year's shoots made about ten inches long and set nearly full length in the soil will root readily.

Pepper and egg plant seed may be sowed in boxes this month and transplanted to small pots to keep growing. They

may be shifted to still larger pots, if necessary, and finally planted out about the last of May when the soil is warm.

If you plant any corn this month, try the Norfolk Market variety. This is not a sugar corn, but a very early dent. Sugar corn is apt to rot in the cold ground in March, and hence for March planting the Norfolk corn is best.

In the Flower Garden

Cutting of the hardy annual blooming roses of the remontant class and the Crimson Rambler class will now root readily from the ripe wood grown last year. The tea roses are better rooted in the fall. (For these see August and September.)

The beds of hyacinths and tulips which should have had a mulch of rough manure in the fall should now have the mulch raked off, as they are about to bloom, and it is necessary to keep the soil clean.

The narcissus or daffodils will be in their prime early in March, and all these can be lifted when their tops ripen and the beds filled with summer plants.

The little red ever-blooming Vernon begonias are easily raised from seed and make beautiful beds in summer, standing heat and drought and always in bloom. The foliage turns a bronzy red in the sun and there are white varieties that can be grown as a border to the red ones. The seed are as fine as dust and should be sown on the surface of some moist soil in a box and a pane of glass placed over the box, and they will soon start and make nice plants for bedding out after the tulips and hyacinths are over.

Then if you do not want to lift the bulbs, you can plant these between them and cut off the ripe tops of the bulbs. Then there is a perfectly hardy tuberous begonia called Evansiana which can be planted between the bulbs in the fall, and when the tulips and hyacinths fade these will come up, make fine foliage and a mass of pink flowers. Being perfectly hardy, they can remain where planted all winter.

Some plant their dahlias early, but I think this is a mistake, as they get to blooming in the hot weather and the flowers are

not so good as in the fall. Here I take up the dahlia roots after frost, bury them in the garden and cover thickly with earth. They will stand the winter outside in an ordinary winter, but in a very cold one may get hurt. I defer planting these till May and take up the roots and cut off the sprouts that are starting to keep them from growing too early, for I want the fine fall flowers.

The hardy perennial phlox makes the finest of all summer bloom. Its colors range from pure white to purple and crimson and they make a fine show in the garden all summer through.

Sow seed of scarlet sage in a well prepared bed the middle of the month, and transplant to beds for blooming. The variety called Zurich is about the best. Cuttings made in the fall can be carried over in pots in winter and they root very easily in moist boxes of sand. I carry some over in the greenhouse to get cuttings from in early spring, as these bloom earlier than the seedling plants.

APRIL

SOW SEED of onions to make sets for fall planting. Sow very thickly in rows 15 inches apart in garden soil that has been manured the year before, but do not fertilize the onions, as we want them to grow only about the size of a boy's playing marble. Hence, sow very thickly and in fertile soil, but do not push them with extra feeding.

In the upper South market gardeners will now plant their main crop of snap beans. In the home garden, the best method is to plant a row, and as soon as that row is well up and takes on the rough leaves, plant another row and keep this up till August or September so as to have a constant succession in good shape for the table. The Black Valentine, for earliest, should now be followed by better varieties such as Red Valentine and Burpee's Green Stringless. Tait's Celestial is the best of the wax beans.

Plant bush lima beans in rows just as we do the snap beans, but rather thinly. Six inches apart in the row will be abundantly thick to plant the Fordhook variety. This belongs to the thick or potato lima class, and is far better for the South than any of the large white lima beans, as these are always unproductive south of the Potomac. The small lima or butter bean is more productive in the South.

Set strong stakes and stretch a 5-foot width of chicken wire netting with the lower edge a foot from the ground for the climbing beans. Then you can plant them 2 feet apart in the rows, make the rows 4 feet apart, and there will be a much neater appearance in the garden than with poles. If the garden is enclosed by a woven wire fence, as mine is, the fence makes a fine place for climbing beans and tall late peas, and saves room in the garden.

Having started the tomato plants for the early crop at the proper time in February, and having transplanted them in frames to get strong and hardy, they can now be set in the open ground. It is far better to set stakes to each plant for the early crop and train the plants to a single stem. The fruit will ripen earlier and better than on the ground, and the plants can be set closer. I make the rows 3 feet apart, set the plants 2

feet in the rows, and make the stakes 6 feet tall. Spraying with bordeaux mixture should be done before the plants are taken from the frames, again soon after they are set out, and repeated every ten days till the tomatoes are half grown. This is to prevent the leaf blight, and unless the spraying is done the plants will soon be losing their lower leaves and the fruit will be inferior. The mixture can now be had ready-made from seedsmen with directions for use.

The egg plants should be kept under glass or cloth till the weather and the soil are well warmed, for if these are set too early they will get stunted and make poor plants.

Keep the onions absolutely clean. This is a crop one must get right down to with hands and pull out every spear of grass and weeds, for onions will not tolerate weeds. Pull the soil away from them so that the bulbs will form on the surface with only the roots in the ground. The offsets of the Yellow Potato onion can be pulled for use as green onions, as they clean up perfectly white. But enough of these should be left to mature, as these are the sets for fall planting, since this onion never makes seed.

If the white onions planted last fall from seed-grown sets show signs of running to seed, nip out the seed shoot as soon as seen and you can save the onion, for if this top is allowed to grow, the onion will be hollow and worthless.

If not provided with frames for starting plants of the Prizetaker, Giant Gibraltar and other large Spanish onions, you can sow seed of these to make sets, and keep the ripe sets over in a cold dark place for spring planting. They will make about as large onions as the transplanted plants, but it takes longer to get the crop.

The beds prepared last month for cucumbers and cantaloupes should now be somewhat flattened and the seed drilled in thinly along the beds. Then when a stand is secured, thin them to 20 inches in the rows. A tablespoonful of nitrate of soda should be scattered around each hill. This will push them along rapidly and increase the earliness of the crop. Keep them absolutely clean till the vines cover the ground. Plant watermelons in hills 8 x 10 feet, putting a peck of well-rotted

manure in each hill, together with a handful of good fertilizer, before hilling. Plant plenty of seed to insure a stand.

All these plants are apt to be attacked by the little striped or speckled diabrotica beetles just as they come through the soil. Watch the germination and keep the plants covered with some dusty material. I use fine raw bone meal or tobacco dust. This prevents the beetles and helps the plants at same time. But anything that will keep the plants dusty will bother the beetles. Spraying with lead arsenate 1 pound in 30 gallons of water with a little corn syrup to make it stick will kill them.

Keep the early cabbages well cultivated till they head. Any plant that does not promise to head with the earliest can be made to go to heading by pulling it slightly till you hear some roots crack.

Urge the cauliflowers with side dressing of nitrate of soda, for it is important to head them before the weather gets hot. When the heads appear turn some of the top leaves over them to keep the sun off and you will get whiter heads.

Plant seed of okra in hills 2 feet apart and rows 3 feet apart, dropping several seed in a hill; or plant in rows and chop out just as you would cotton. Okra grows very slowly till the weather gets hot, and it, too, is helped by side-dressings of nitrate of soda.

The early outdoor lettuce will also be pushed on with nitrate of soda applied between the rows when the plants are dry, but not touching the leaves. I have found that this can be best applied in the garden by mixing it half and half with plaster. When mixed a while beforehand the nitrate absorbs moisture and the plaster absorbs it and the whole will get fine and more easily applied than when the nitrate is in lumps.

Early in the month plant seed of sugar corn. The little extra early varieties that are grown in the North seldom do much in the South, and it is better to start at once with the stronger growing varieties like Stowell Evergreen and Country Gentleman. The Kendall Giant is earlier than these and is a good variety.

Keep up a succession of the sugar corns till August. The late plantings will be best for seed, as the ears will then be

more free from the boll worms. A few rows of early sugar corn planted in the cotton fields will protect the cotton very largely from the boll worms.

Early Milan turnips can still be sowed early in the month, and if you have never tried spring-sowed turnips you will find these a treat, and they sell, too.

Begin to spray the Irish potatoes as soon as they are well up with bordeaux mixture in which 1½ pounds of lead arsenate is added to 50 gallons of the bordeaux. Spray repeatedly and thus ward off the blight and destroy the beetles at the same time.

In thinning out the early beets it is best to transplant the thinnings. They will come on for use a little later than those left in the rows, but will keep up the supply till the late sowed beets are ready.

Celery seed can be sowed about the middle of the month and later.

Tomato seed are sowed outside in early April, and again the last of May, using the later varieties. This is to keep up a constant succession of good fruit and to have a lot of well-grown green ones when frost comes in the fall to ripen in the house.

The second sowing of peas of the better wrinkled sorts should now be made to follow the early ones. I plant some of the dwarf sorts like Sutton's Excelsior and Laxtonian, and also the old Champion of England.

Sweet potatoes can be set as soon as the danger from frost is past.

Sow now a row of Lucullus chard, and you will have a nice lot of greens equal to spinach all summer, for the leaves can be pulled like rhubarb and they will keep on making leaves till frost.

Sow curled endive to be transplanted later for heading, to take the place of lettuce in hot weather. As the heads develop I have some cardboard plant protectors that fold in a conical shape and are used to protect plants in spring. These are set over the endive plants to blanch them.

Everbearing strawberries have come to stay. One can plant them in the spring and have fruit from July till November. There are three leading varieties—Superb, Americus, and Progressive.

In the Flower Garden

As the tops of the bulbs of narcissus, hyacinths and tulips ripen they can be taken up, cured and stored for fall planting, or the tops can be cut off and the plants of China asters set between them.

You can get seed of the coleus, sow in boxes in a sunny window and can get a great variety of the colored leaves for transplanting when the weather is finally warm. The seed are very fine and need very little cover, and the box should have a pane of glass laid over it to retain moisture. Then as soon as the little plants are making rough leaves, lift them on the blade of a pocket knife and set them in another box to give more room and to get hardy plants for setting later in the beds.

Sow more seed of China aster for late plants. Sow the tall branching varieties thinly in a well-prepared bed. They transplant easily if taken up carefully and dropped into a basin of water and set dripping wet.

As the gladiolus appear above ground, keep the plants clean and pull the soil up to them. The corms should have been planted fully 5 inches deep, for the new bulb forms on top the old one. Plant a few more bulbs to keep up a succession of bloom, and plant again as the newly planted ones appear above ground.

The candidum lilies, the old-fashioned Madonna lilies, will now be throwing up their flower stalks. Keep them absolutely clean of weeds. The bulbs of this lily are largely imported from France, but they can be grown in this country fully as well. They die down after blooming and start to grow in the fall. The bulbs should not be moved more frequently than once in three years. They can then be taken up in summer when the tops ripen and divided and replanted at once.

Set the beds of scarlet sage late in this month. I set them in circular beds 10 feet wide and set the plants about 10 inches

apart in rows to make a mass of bloom. As fast as the flower spikes fade they are cut and saved for seed. Spread them out on an old newspaper to dry and later rub the seed out. A bed of scarlet sage makes a great show, but should be kept well supplied with water, for the plants make immense roots and rapidly dry out the bed.

Dahlias can be planted late in the month. When the old mass of roots has made a number of sprouts, cut them up with a sprout to each root, for they do far better with a single stem than a mass of shoots. Good stakes should be set to each plant to tie the stems to and prevent falling. Later on when the stalks have grown tall and threaten to make hot weather flowers I cut them back and cause them to branch bushy and make flowers later, when they are much finer. I prefer to have the flowers from August to frost rather than in the heat of summer, when other flowers are plentiful.

After the shrubbery, such as forsythias, spireas and wiegelias have made their bloom, cut back all the shoots that have bloomed and the plants will make a fine growth for another season.

Roses, of course, we all want. Do not buy the little things sent by mail, but get two-year strong plants that have been kept dormant. Florists sell these, and while they cost more than the little slips sent by mail, they are worth a great deal more. Here, too, we have the advantage that in the South we can grow the tea roses that do not stand out in the North, and can also grow the hardy ones as well. Then, as climbing roses, we can grow the yellow and white Banksias, the first roses to bloom in spring, and to my mind there are no porch climbers finer than the Banksia roses. Of course, we can also have the ramblers so popular north, and in a good clay soil we can have a mass of roses all summer that are the envy of all those living in colder climates. The splendid Marechal Niel, the prince of yellow roses, thrives in the South as nowhere else, and is as evergreen as the Banksias.

April is the great planting month for all shrubbery and roses, and a garden without shrubbery and roses is rather bare.

MAY

WITH the disappearance of all frost, garden operations will be rushed and all the more tender crops gotten in.

Continue planting succession crops such as beans, putting in a few as soon as previous plantings are well up.

Set plants of cabbage for autumn heading. For this planting use Succession and Fottler's Brunswick.

Plant succession crops of sugar corn twice during the month, never planting less than three rows so that there will be an abundance of pollen, for a single row of corn will seldom do well.

When the celery plants sown last month get 2 or 3 inches high take them up and nip the tap root and transplant to another bed, setting them in rows 10 inches apart and 2 inches in the rows, to make strong plants for the final transplanting. Keep them absolutely clean, and if they grow too fast, clip the tops somewhat, for we want sturdy plants for setting in August.

Plant squashes, cucumbers, cantaloupes and watermelons if not planted in April.

Set out egg plants the latter part of the month in rows 3 feet apart and 3 feet in the rows. Give them side-dressings of nitrate of soda after they start to grow, and spray with lead arsenate to destroy the potato beetles that attack these as much as they do potatoes.

Push along the young okra plants with side dressings of nitrate of soda. Give the cucumbers and melons, too, some of the nitrate.

Lettuce, to head before the weather gets too hot, must be pushed along and never allowed to suffer from lack of water. If the plot of lettuce has been heavily manured and fertilized it will be the best place to set the celery plants after the lettuce is done, though celery can follow even a later crop.

Watch every chance to put in something else as the earliest crops mature, for in the South we should use every effort to keep the garden at work not only all summer but all the year round.

Set sweet potato plants early in this month. Do not give them too strongly nitrogenous fertilizer, but plenty of acid phosphate and potash in the furrows under the beds. Do not hill up too high, for we get better and more chunky potatoes in shallow ridges, no higher than a good broad sweep will make.

Sow seed of tomatoes for a crop to follow the early ones which are apt to fail by July or be making inferior fruits. For this sowing I prefer to use seed of Red Rock, Mississippi Girl, or Globe, the first two being red and the last one pink.

Then, the last of the month, sow a few more seed for the latest plants to ripen in September and October to give plenty of well-grown green fruits which, when frost comes, can be wrapped in paper, stored in a cool place and ripened a few at a time till Christmas. Plant late tomatoes 4 feet each way and let them take their natural habit, but spray them with bordeaux mixture to prevent leaf blight.

The last of the month sow seed of parsnips and salsify in rows 16 inches apart. Cover the parsnip seed lightly, and when a stand is secured thin them to 4 inches. The salsify will do very well thinned to 3 inches or less.

Cuttings of horse-radish roots can be planted between the early cabbage. Punch holes with a dibble or a crowbar and drop the cuttings in and cover. They will start off vigorously after the cabbages are cut and will be ready to dig in the fall.

Side dressings of nitrate of soda will help push many things along, especially the leaf crops like lettuce, cabbages and kale.

When spinach begins to run to bloom, turn it all under for a later crop of some kind, and all the summer through keep the garden at work growing crop after crop, and have plenty for the coming winter.

Leeks in the seed bed must be kept clean and cultivated till time to set in their permanent place. I usually transplant them in July, but if space becomes vacant and the plants are strong they can be transplanted in late May or June.

Peppers can be set out early in the month. The Pimiento pepper will bear clear through the season till frost and produces more than any pepper I have ever grown.

Pumpkins can be planted in the cornfield; they take too much room in the garden.

In cutting asparagus, cut close down on the crown and leave no stump, but be careful not to injure the new shoots just starting. It is well to stop cutting early in June, and then fertilize heavily and cultivate clean the remainder of the season to get a strong growth of crowns to make big shoots next spring.

Early beets, like the Egyptian, get poor in quality in summer and it is better to make a succession by sowing seed of the Model or the Eclipse in May. A third sowing of the blood turnips is also made in June or July for winter use.

In the Flower Garden

Seed of various annuals which transplant easily, such as China asters, phlox drummondii, if sown in March or early April, will now be ready to set in the beds. Seed of other plants can be sown where they are to remain and be thinned out. Of this class the double zinnias are an example.

The geraniums which, in the North, do so finely bedded out, are not suited to this use in the South except in the cool mountain valleys, but they can be used to good effect in window and porch boxes. The zinnias will make showy beds and will take the place of the geraniums.

The everblooming begonias are also excellent for bedding. They bloom continuously and stand the sun, and some can be taken up and placed in pots to bloom in winter. This class of begonias seed very freely, and I grow them from seed every year, as they are more rapidly produced in this way than from cuttings. The seed are as fine as dust and to start them I sow the seed on the surface of the soil in a box early in March after watering the soil, and then place a pane of glass over the little box to prevent the soil from drying out. They will then germinate readily and later can be transplanted and given room in another box till large enough to set out in May. Then they are cut out of the boxes with a mass of soil and set closely in beds. The flowers vary in color from white to crimson.

Bulbs of the gladiolus can be planted from February to June so as to give a succession of bloom. The Oriental poppies

are hardy perennials, but are very hard to get to live when transplanted. Seed sown now will make good plants, and should be sown where they are to remain and the plants thinned to a foot apart. They will begin to bloom the next year and continue for many years to throw up their gorgeous blossoms.

JUNE

ABOUT the last of the month is a good time to sow seed of late cabbage and collards for winter keeping and use. Some have a notion that good winter heading cabbages cannot be grown in the South, and hence depend on collards alone. Collards are good, but, personally, I prefer cabbage. The important thing is to get good strong plants to set in late July or early August. Make the seedbed convenient to water and then see that the plants never suffer for lack of it. Use the soapsuds from the weekly wash to water the plants and to destroy the green caterpillars that will attack them. For setting and subsequent treatment follow our suggestions for later months.

For the late crop I prefer a good strain of the old Late Flat Dutch. The Danish Ballhead is also good, but succeeds best on a lighter soil. For quality the Drumhead Savoy is excellent.

If you are marketing the early Irish potato crop, of course you can dig as soon as they are of sufficient size, but if you propose to grow later on a second crop from seed of the early ones, let the potatoes you intend for this purpose fully mature. Then, take them up and cut them in halves, spread out on the ground, cover with pinestraw and keep that somewhat moist. Then watch them, and plant as they sprout.

Where the potatoes are grown largely for market, prepare the ground at once after the potatoes are off, sow to cowpeas for the benefit of the soil, or for hay to feed, and follow with crimson clover as a winter cover crop to turn under for the sweet potato crop the next season.

Set plants of endive for heading to take the place of lettuce in summer, and when well grown tie the leaves together to blanch them. Do this when the leaves are dry, for if tied when wet they may decay.

Clip the tops of the celery plants if they grow too strongly. You want short and stout plants for setting later.

Clean out and fertilize the strawberries and do not allow the runners to root between the rows, but train them in along the row to mate closely. A strong growth now with the crab

grass and weeds pulled out will make strong crowns for fruiting next spring. Keep up this clean cultivation all summer.

Cutting of asparagus should stop in the South by the 10th of June. Then the plot should be well fertilized and cleanly cultivated in order to get the strongest possible growth to give large shoots the next season. When frost comes, clean off the tops and cover the whole bed thickly with manure for the winter.

Plant a row of snap beans at a time, and as fast as one row is up, plant another, and keep this up till August in order to have a regular succession for the table. The bush lima beans and the climbing small lima or butter bean can still be planted. A wire fence is a good place for the butter beans. The Fordhook bush lima is the best of the bush sorts.

The last of the month sow Blood Turnip beets and carrots for winter use. I sow the Danvers Half-Long carrot. These and the late beets I leave in the rows all winter, throwing a slight furrow to each side, and they keep better than if lifted.

Salsify and parsnip should now be sown. In the North these are sown early in spring, but in the South later sowing is best, as they are apt to get woody or run to seed here if sown early. To get a good germination of parsnips I find it an advantage to plant the seed in little bunches about 4 inches apart, as a pinch of seed will force its way through more easily than a single seed, and the bunches are easily thinned. The salsify is sown in a continuous row and thinned while small to 3 inches apart.

Cucumbers for pickling should now be planted. Plant in hills 3 x 5 feet. Use plenty of seed to make sure of a stand in spite of the bugs. Dust them over just as they come through the ground with plaster or bone dust, or, in fact, any dusty material to keep the little striped beetles in check. Tobacco dust is good, and will help the plants, too. I plant the Davis Perfect.

Succession plantings of corn should be kept up till late July, planting a few rows of the Country Gentleman or the Stowell Evergreen as soon as the previous planting is well up. The Mammoth sugar corn is stronger in growth and makes

larger ears, but is not of as good quality as the first named sorts.

The first of June is the best time to set the egg plants outside, for they need the soil to be permanently warm. I keep mine in 4-inch pots, setting the pots in a cold frame about the 20th of May and attending closely to them by covering with the sashes on chilly nights, for they are more tender than tomato plants. I grow the Black Beauty and Maule's Excelsior. The last is the larger fruited, but the first is more prolific.

If you sowed leek seed early in spring the plants will be ready to transplant the last of June. I set them in open furrows 3 inches apart, and as they grow pull the soil to them in order to get a good long white shank. These are hardy and are left in the ground all winter, and come in very nicely till the green onions are ready.

If you like okra and failed to plant earlier, plant now at any time till middle of month. I plant the Perkins Long Pod and the Kleckley, the first a green podded sort and the latter a white one.

Sweet pepper plants can still be set, but sowing the seed now would make them very late. The plants can usually be bought from those who grow vegetable plants for sale.

Green Curled Scotch kale planted in hills like cabbage and thinned to one plant in a hill will make immense heads, and when touched by frost are very fine—better in my opinion than collards. The plants will keep growing most of the winter as fast as the leaves are pulled.

If you want pumpkins stick some seed in the cornfield and get all you need.

Late Irish potatoes can be planted the last of the month and up to the middle of July. Plant in deep furrows, cover lightly till they start, work the soil to them till level, cultivate shallow and level and do not hill as we do early potatoes, but maintain a dust mulch to retain the moisture.

In the Flower Garden

Very tender bedding plants like coleus will do better by setting in early June than earlier.

Keep the flower beds absolutely clean of grass and weeds. Neatness is essential in the lawn and flower plantations.

Keep the lawn mower going in all favorable weather, but do not mow the grass short in a drought.

Candidum lilies will be blooming by the middle of the month. As soon as the flowers fade, cut out the blooming tips of the stalks to prevent seed formation which would weaken the bulbs.

JULY

CONTINUE planting successive crops of snap beans and sugar corn. Sugar corn planted now will keep up the succession of roasting ears till frost and will also make the best ears for saving seed. Kandall Giant and Country Gentleman are good varieties. The first named is the earlier.

Sow rutabaga and large White French turnip seed in rows and thin them to 4 or 5 inches in the rows. A good plan is to run out furrows and put a heavy application of fertilizer in them and bed on this. Then flatten the bed slightly and drill the seed in with a garden seed drill. These turnips need a longer season than the ordinary white and purple-top turnips and should be sown earlier.

In the mountain sections celery plants should be set the latter half of the month, but in the warmer parts of the South, August is a better time.

In all warmer sections and the lower South this is a good time to sow the seed of parsnips and salsify, which should be sown in June in the more elevated and northern sections of the South. The plants make their best growth in the fall months and up to Christmas and are far better when not sown too early. Sown as is common in the North, they will get overgrown, may run to seed and the roots will be inferior.

Keep the fall cabbages well cultivated. Running a bull-tongue plow through the rows to snap some of the roots will hasten the heading. After the middle of the month, set out plants for winter cabbages to head in late November or early December. A good strain of the Late Flat Dutch is as good as any, and the seed should be sown and treated according to directions already given. This will also apply to collards.

Good tomato plants set the first of the month will give the best late fruits in September and October till frost. It is always best to make about three plantings of tomatoes to have the fruits in prime condition through the whole season, setting the early forwarded plants in April and another set in early June and the third the first of July—seed having been sown first in February, then in April and again in late May.

Egg plants should now be strong and setting fruit. They

like a very rich soil and plenty of water, and if allowed to suffer from drought they will get stunted and make a poor crop.

As the earliest tomatoes have completed their best fruiting, it does not pay to keep them longer after the second planting comes into fruit, so I always clean them out when I begin to get the later ones and get the ground ready for something else.

Above all, let no part of the garden get smothered in crab grass. This not only robs the soil but is in the way in keeping up a succession of crops and makes a harbor for breeding cut worms to bother you next spring. Therefore, allow no grass in the garden at any part of the season.

Brussels sprouts set now just as you would set cabbage plants will make a swarm of little heads all over the stalks just as frost comes, and they will be all the better for some frosting. They make fine eating.

Kohl rabi is another plant of the cabbage family which can be sown now. It makes tops like a rutabaga, but the stem swells out above ground as large as a good-sized turnip, and this stem is the edible part. Peeled and boiled like cabbage, it is almost the next thing to cauliflower in taste.

The early cymlings or squash are apt to fail about this time and a late planting will bring good ones in before frost. Squash are easily canned, and in winter the canned ones cannot be distinguished from fresh ones.

Tomatoes for canning should not mature too early. August and September tomatoes are far better for canning than the earlier ones.

Snap beans also can nicely, being just as good in winter as in summer, and with a little care one can have them on the table all the year round. Canned vegetables will make the winter diet far more attractive and wholesome, and now is the time to lay up your supply.

Instead of letting summer apples and pears go to waste, can these, too, as well as the peaches. In fact, put up a full supply of canned vegetables and fruits.

Late in the month, sow garden peas for a fall crop. For this sowing Sutton's Excelsior and Thomas Laxton are the best. Sow in deep furrows and cover lightly; then work the

soil to them as they grow so that you can get the roots deep in the soil, enabling them better to stand the heat and droughts of summer. They will usually give a good crop in the early fall. These, too, can be profitably canned.

A late planting of chard will give leaves for boiling till the early fall spinach comes in.

Get all garden refuse into a compost heap to rot down and return to the garden next spring. All the cabbage stumps, old tomato vines and, in fact, weeds and refuse of all sorts, will make humus for the garden, and even the crab grass which gets a start on you will be all right in the compost pile.

Transplant leeks to open furrows 3 inches apart in rows 15 inches apart. As they get started in growth, pull the soil to them, for we want to get them deep in the ground to make long white shanks for winter use.

Plant the late crop of Irish potatoes the middle of the month in the upper South and up to August in more southern sections. The methods of planting and cultivating have already been discussed under the head of potato growing.

Sow seed of the Late Flat Dutch cabbage convenient to water in a bed made very rich, and grow strong plants for setting in mid-August. And remember that big cabbage are the result of heavy feeding and plenty of moisture.

Late beets and carrots are sowed in July. A good strain of the Blood Turnip beet is good. For carrots I use the Half-Long Danvers.

While for general use a good strain of the Late Flat Dutch cabbage will fill the bill, the Drumhead Savoy should not be neglected, because it is of especially fine quality.

Cucumbers for pickles should be planted early in July. Plant just as for the early crop, and spray with bordeaux mixture in which lead arsenate is mixed, 1½ pounds to 50 gallons of bordeaux, thus making a fungicide and an insecticide at the same time. This will keep the foliage good and check the pickle worm.

Give the egg plants a side dressing of nitrate of soda, and if possible irrigate them in dry weather, for they suffer very quickly from drought.

Pull the ripe onions and let them lie in the sun during the day, but spread out under cover before night with the tops left on, and when the tops are dry, store in a cool dark place till wanted for use or sale. If you have sown onion seed for sets they will now be ripe. Take them up and sift the soil from them and spread out under cover to cure ready for setting in September.

If you are still growing the old varieties of sweet peppers for pickles, you can set plants early in July for the pickles. The newer Pimiento pepper bears all the season through from June till frost, and needs but one setting of plants.

In the Flower Garden

The tea roses which bloom so profusely in May and June should have all the shoots that have bloomed cut back half way to start a new growth and bloom. In cutting roses for house decoration it is always best to cut good long stems, for the ever-blooming tea roses and the hybrid teas bloom on the young shoots, and to get a continuous profusion of flowers they need heavy manuring and severe cutting to induce plenty of fresh blooming wood.

The climbing roses like the Crimson Rambler and Dorothy Perkins will need good treatment after their blooming season in May, for they are peculiarly liable to mildew. Spraying with a solution of formaldehyde, 1 part to 25 parts of water, is usually a good preventive. I also use a preparation called Fungine, and have found it effective. But do not wait till the mildew is all over the plant, for you cannot save the mildewed leaves, and the only thing you can do then is to prevent it on the new leaves.

The green aphides are often a pest on roses. Spraying with a solution of nicotine sulfate will clean these out easily. They are apt to be worse in early spring than in hot weather, but they appear in some form at any time.

Keep a sharp lookout for insects of all kinds, for the hot season brings many kinds into activity.

AUGUST

MAKE the first sowing of Big Boston lettuce early in the month to make plants for setting in a bed 10 x 10 inches for fall heading outdoors. The soil must be made very rich with manure and fertilizer, and the plants should never lack for water after setting in the bed. The seed can be sown in rows in the bed and thinned to the proper distance, but I have always had better success from transplanting.

Set plants of the Late Flat Dutch cabbage for heading in December for winter keeping. The summer and early fall cabbages should be used or disposed of as soon as well headed, for they will burst later.

Set celery plants the middle of the month in the central and upper South, and in the far South sow seed for the winter crop. Many of the northern dealers now grow celery plants late, especially for southern setting.

Sow seed of the Norfolk Savoy spinach for the fall crop. Sow in rows 15 inches apart and fertilize well, for rapid growth is essential to making good spinach.

Mustard can also be sown for fall greens.

Sow Moss Curled parsley in a frame where you can protect it in winter with cloth. It is perfectly hardy, but to have fresh leaves in winter it is best to shelter it from hard freezing. The seed germinate slowly and should be sown rather thickly. If sown in a sheltered bed in rows and well mulched with rough manure in the late fall it may do very well without the cloth.

Early in the month sow seed of the Early Milan turnip for fall use, and later in the month sow seed of the Purple Top Globe and the Yellow Aberdeen for winter use. Sow these in rows 16 inches apart and cultivate clean. The last of the month seed of the Seven Top turnip can be sown broadcast to make greens for winter and spring. They will be all the better if sheltered with green pine boughs in winter.

The early dwarf garden peas can still be sown early in the month in the same manner suggested for last month, and will generally be more free from mildew than sown earlier. But it will be well to spray them with bordeaux mixture to ward off mildew.

Sow seed of the Celestial radish in rows in a bed 12 inches apart. Make the soil very rich and thin them to 3 inches, for they grow as large as a big turnip. Seed of the Red Turnip-Rooted Chinese and the Rose-Colored Chinese radish can also be sown. Sow all of these about the middle of the month. The Celestial is fine boiled like turnips, and is also good raw. The Rose-Colored Chinese radish is rather more hardy. It can be left in the row, and if well mulched with coarse manure it can be pulled all winter, and the roots do not get pithy.

The Dwarf Essex rape is now commonly sown for hogs and other stock, but few realize what fine boiled greens it makes, and it will not come amiss to have some in the garden for fall and winter greens.

But for the standard winter greens sow the Norfolk Curled kale in rows 15 inches apart, and it and the rape, too, will be ready to cut all winter. Boiled greens are wholesome and should be continually on hand in every farm garden.

Plant more snap beans for fall crop and have some for canning or putting down in stone jars in brine for the winter. We pack these raw in the glass fruit jars and set in the boiler with the tops loose to cook and then screw tight, and they keep finely. Egg plants are peeled, cut up, and packed in the jars and cooked in the same way. Then if taken out in winter, made out in cakes and fried, they are as good as if fresh.

In the latter half of the month sow seed of the Prizetaker and Giant Gibraltar onions in a seed bed, and when they are the size of a lead pencil transplant them in rows 15 inches apart in well enriched soil and they will winter well and make very large onions next summer.

In the colder Piedmont and mountain sections they should be sown in January in cold frames under glass and transplanted in the early spring, but in all the warmer sections, fall planting will succeed.

Keep the leeks cleanly cultivated and continue to draw the soil to them till somewhat mounded up. Leeks are milder than onions and make a fine dish in winter. They are perfectly hardy and are left all winter where they grew, ready for pulling at any time. They take the place of green onions very well

till the onions are ready in the spring, and add a great deal to the making of an all-the-year-round garden. In fact, if one watches the chances, the garden will be almost as full of fresh vegetables in winter as in summer.

The latest tomato plants will now be setting green fruit for the September and October crop. Keep them clean of the aggressive crab grass, and they will be all the better trained up to stakes in the garden, though in field culture they are usually allowed to take their natural habit on the ground. Spraying with bordeaux mixture is needed to ward off the leaf blight. But for bacterial blight that causes the plants to suddenly collapse there is no help except to plant in uninfected soil.

Sow some parsley seed now in a frame where it can be protected in winter either with sash or cloth, and it will be ready for use all winter.

Cultivate the late Irish potatoes shallow, level and rapidly, and do not hill them up. We need at this season to maintain a loose dust blanket on the soil to retain moisture.

A medium early sugar corn like Kendall's Giant planted the first of August will in ordinary seasons give some roasting ears before frost.

Celery plants can now be set for the winter crop.

Keep the green pods of okra cut closely. If you allow it to get old and ripen seed, the plants will soon stop making pods.

In the Flower Garden

August is the best time to plant bulbs of the old white lily or Lilium Candidum, known also as the Madonna lily. This lily must make a good fall growth above ground in order to bloom well the next season. The Guernsey lily, Nerine Sarniense, is now still dormant and can be planted, though July would have been better. It blooms in late September and then throws up its leaves which are green all winter and disappear in the heat of summer.

SEPTEMBER

MAKE the second sowing of spinach seed early in the month, and about the last of the month sow for wintering over for spring cutting. This last sowing I sow broadcast in heavily fertilized soil, and rake the seed in well, as they seem to winter better in this way. In the lower South this sowing will be in shape for cutting in winter, and the Southern truckers commonly sow again in February for the latest spring cutting.

Sow seed of the Early Jersey Wakefield cabbage after the middle of the month to make plants for setting in open furrows in November. These are the so-called "frost proof" plants.

The turnip-rooted radishes will still make a crop sown early in the month in very good soil heavily fertilized. The winter radishes mentioned in August can also still be sown early this month.

About the middle of September, plant sets of the Yellow Potato onion for the earliest ripe onion next June. Plant at same time sets of the Norfolk Queen and Pearl for green onions in early spring.

Seed of the Prizetaker and Giant Gibraltar and Denia onions can still be sown in beds and transplanted, as soon as they reach the size of a lead pencil in rows 15 inches apart, as we plant all onions. These will make very large ripe onions next summer. In the upper South the sowing can be deferred till January, the seed being then sown under glass in a frame for transplanting in spring, but in all the warmer sections of the South the fall sowing will be successful. In fact, the early Pearl can be sown now and make good green onions in spring.

In the lower South, Black Valentine beans sown early this month will have time to make a crop before frost.

Seed of cauliflowers can now be sowed. Set in a bed or frame 15 inches apart, and protected with cloth in very cold weather, having the soil very rich in the frame, they will head in April or early May.

The Norfolk Curled kale can also be sowed in rows for late winter and early spring cutting for greens, as can the Seven-Top turnip.

The Pimiento peppers can be canned just like snap beans, and when boiled in winter are fine.

If you sowed English peas in August they should be sprayed with bordeaux mixture to prevent mildew before blooming.

Give the late Irish potatoes rapid and shallow cultivation. They need a dust blanket on the surface to conserve the moisture in the soil.

Do not disturb the sweet potato vines. Some think it well to pull them loose from the ground, but this does more harm than good.

Any of the flat turnips will make a crop in good soil sowed this month. The Purple Top American Globe is a good variety, but for September sowing the strap-leaved varieties are best.

The asparagus tops which you find full of red berries had better be cut and burnt unless you want the bed smothered with seedling volunteer plants. But the tops in general should not be disturbed till frost. Keep the asparagus clean of weeds and grass.

Lettuce plants from seed sowed in August should now be set for heading. I find it best and convenient to plant in beds about 6 feet wide and 10 inches apart in the bed each way. I lift the plants carefully with a garden trowel and drop them at once into a bucket of water and set them dripping wet. Even when no water is afterward applied these plants will usually live. Of course if the soil is very dry, a good soaking is necessary. For this planting I use the Hanson and Wonderful, as they stand the warm weather of September better than the Big Boston. What is needed is a bed heavily manured, and then, after the plants start, some nitrate of soda as a side-dressing to push them along, for lettuce to be good must be grown fast, and if stunted by dry soil or lack of plant food, you will not get good heads and many plants will run to seed.

The middle of the month sow seed of the Big Boston lettuce to set in the frames later.

In the Flower Garden

September is the time for planting most of the hardy bulbs such as hyacinth, tulip and narcissus. Plant the bulbs 3 inches

deep, and after planting cover the beds well with rough manure, and as they start in spring rake off the rough part.

The Roman hyacinths and the Polyanthus narcissus are better planted late after the soil gets cold. They are reputed to be tender, but this is mainly because they start to grow at once if planted early, and in that case will get hurt, but if planted late they will remain dormant till February. The best of the Polyanthus narcissus is the Paper-White Grandiflora. Grand Soliel D'Or is yellow and also good. The so-called Dutch-Roman hyacinths are simply small bulbs of the regular Dutch hyacinths. They bloom finely and will make large bulbs the next season and bloom larger spikes. I prefer to plant these rather than the regular sizes, for they continue to give large spikes longer than the larger ones.

Sow seed of the Phlox Drummondii to winter over for early spring blooming. In mild winters they will often bloom in February, and in any season will make more flowers and better than if sown in the spring, as the plants are perfectly hardy.

If you have the large flowered cannas you can save seed from them and plant them at once and they will grow in spring and you may get some strikingly new varieties. If not convenient to plant them this fall, put them in a box of moist sand and bury the box outside till spring and then sow them.

Lift the early-planted gladiolus bulbs and separate the new bulb or corm from the old one. Save the little bulblets that form under the main bulbs, and sow them at once in rows about 3 inches deep and they will grow in the spring and make blooming bulbs in one season's growth, and in this way you can rapidly increase your supply of this flower.

Peonies can now be taken up and the roots divided and replanted, setting them with the tops not over 2 inches under the surface, for if planted deeply they will not bloom well and they need great care in the South to bloom at all. They do best in a strong clay loam retentive of moisture.

The hardy perennial phlox, too, can be divided and replanted, but November is a better time.

OCTOBER

(*These October notes are for the upper South. Further South they will apply to November.*)

THE first of the month make the last sowing of spinach for wintering over for spring cutting. This can be sown broadcast and raked in. The soil should, of course, be well manured. In the lower South sow seed last of month.

When frost nips the tops of the sweet potatoes, they should be lifted at once. This can be best done in dry sunny weather. If they are to be stored in a potato curing house, the best way is to put them carefully in slatted bushel crates in the field as they are dug, and store them in the crates, for the less handling done the less danger there will be of bruising or skinning them, for it is the skinned places that get infected and start decay. Keep out all cut potatoes for immediate use, and under no circumstances allow the potatoes to be carelessly thrown in heaps in the field. If they are to be stored in the old style banks, gather them in baskets in the field, haul them to the banks in baskets and place them in the heaps with as much care as you would place eggs.

The late crop of Irish potatoes, too, is to be dug when the tops are frosted off. The keeping of these is far more simple, for the things to be avoided with the Irish potatoes are heat and light, and if they are stored in a perfectly dark place where the temperature will be just above the freezing point, all the better. In the absence of a dark cold cellar, the best way is to put them in heaps and cover with earth thick enough to prevent freezing clear through. In most places 6 inches of earth will be an abundant cover, and all the better if under a shed to keep the earth dry. The sweet potato banks should always be under shelter.

Late cabbages will usually keep growing and heading till December, and directions as to keeping these and collards will be found in our December calendar.

Set lettuce plants in the frames for the Christmas crop. Frames with glass sashes are far better than cloth, but with care you can grow good lettuce under cloth. The soil in the frames should be well stuffed with rotten manure, and the

plants aided after starting with dressings of fertilizer between the rows. Set the plants 8 x 10 inches for the Big Boston. The Boston Market and Tennis Ball and the Belmont can be set 8 inches each way. Keep the glass or cloth off in all sunny weather and do not cover till the nights are quite frosty. Then attend to watering, for if the frames are allowed to dry out the lettuce will not amount to much.

The early-sown spinach will now be coming into use. In cutting, cut the entire plant and not merely the loose leaves.

When frost threatens the tomato vines, gather all the well-grown green tomatoes and wrap them in paper and store for ripening. Then clean up all dead vegetation from the garden and put it into the compost heap to rot and finally go back on the garden. Never burn any garden refuse, for all the refuse will make humus for the soil.

In the Flower Garden

When frost cuts the tops of the dahlias it is best to lift them and bury in a dry place covered with straw or old newspapers, mounding the soil over them. Of course, in most places they will keep if merely well covered in winter with coarse manure, but then in spring they will grow with a mass of shoots, and it is better to have them where you can take them up and divide them so as to have a root and one shoot to a plant.

Cannas, too, should have the dead tops cut off and either lifted and buried or else thickly covered where they grew with pinestraw and their own dead tops. Take up caladiums or elephant ears after frost and cut off the tops and roots and store the tubers in boxes of dry sand in a warm place. I know that they will live out in the warmer sections with a good cover, but they are all the better taken up and stored and kept in dry sand.

Tulip, hyacinth and narcissus bulbs can still be planted. In fact, I have planted tulips Christmas week and had them do as well as if they had been planted earlier.

Seed of the Phlox Drummondii can still be sown early in the month. Canna seed and the little bulblets from the gladiolus can also be sown to grow in spring.

Take up the gladiolus and separate the new bulbs or corms from the old exhausted ones and throw the latter away. Store gladiolus in boxes, each variety labeled, or in paper bags put in boxes and keep in a cool place, but where no frost gets to them.

Hyacinths for blooming in pots should be potted and the pots buried outdoors for three weeks to get well rooted. Then they can be taken up, brought in, put in sunny windows, and if well watered, will make good spikes. The dealers make special selections of varieties best suited to pot culture.

The white Roman hyacinths can be planted thickly in shallow boxes of soil and covered well outdoors till rooted. Brought into the house then, they will give lots of bloom for Christmas. Do not plant these outside till middle of November.

The Chinese Sacred lily, or narcissus tazetta, can be put in bowls of water with pebbles and set in a dark closet to get rooted, and will make plenty of flowers if well treated and not allowed to dry. Paper-White narcissus can be successfully grown in the same way, and hyacinths also set in glasses made for the purpose will bloom well in water if allowed to get rooted well in the dark. But be sure to have the water changed often.

Usually it is best to prepare and sow the lawn in the fall. To make a good lawn the ground should be broken deeply and a heavy application of slaked lime made and worked into the soil and then a dressing of any good high-grade fertilizer. With the soil in perfect condition the grass is to be sown. Sow a mixture of Kentucky bluegrass, red top, sheep fescue and Rhode Island bent grass in equal amounts, and use this at rate of 50 pounds an acre, for thick seeding is essential to the making of a good lawn. After sowing the grass seed scatter about 2 pounds an acre of white clover seed. Top-dress the grass with bone dust every spring and every four or five years brush in some lime.

Where you already have a Bermuda sod for summer, disk the Bermuda over and sow thickly in October with the Italian rye grass, and then roll the sod back. The disking will not hurt the Bermuda but will be more likely to improve it. The Italian rye grass will make the winter and spring lawn green, and die out in summer giving place to the Bermuda.

NOVEMBER

LATE in the month the early Jersey Wakefield cabbage plants from seed sown in September will be ready for planting. Make furrows 3 feet apart, fill half full with fine old manure, on this apply a liberal dressing of acid phosphate and then bed on these. Then open a furrow along the crest of the bed, the rows running east and west, set the plants in the open furrow and deep enough to cover the entire stem, and they will usually winter well. In spring when the soil is leveled, they will be in the proper position in the soil. We want to keep them dormant and not excite them into tender growth, as is often done when they are set on the south side of a ridge.

Now cover the whole garden thickly with stable manure, hiding every bit of soil, mulching between all the rows of the winter vegetables. By spring this manure will be well rotted and ready to feed crops far better than would fresh manure applied at planting time.

Lettuce plants can be set between the cabbage plants and will generally winter all right and head in spring before the cabbage need all the room, the cabbage being set 15 inches apart. For this planting the Hanson Wonderful or New York varieties are good.

Set cauliflower plants in cold frames six plants to a sash and fill in between with close-heading lettuce like the Tennis Ball. The frames will need special attention this month to prevent the lettuce and other plants from growing too tender. Expose them fully in all sunny weather, and put the glass on only on frosty nights and cold stormy days.

Seed of the Marrowfat garden pea can be sown this month and furnished some brush to climb on. The market growers plant them along the rows of dead cotton stalks as a support. These peas come in after the extra early peas planted in January and February.

November is the best time of the year for planting out strawberry plants. They live better now than if planted earlier, as the soil will not get dry again, and the plants will get strong enough to give a fair crop of fruit in the spring. Raspberries, dewberries and blackberries may also be planted now.

Set strawberries in rows 4 feet apart and 15 inches apart in the rows. Plant blackberries and raspberries 3 x 6 feet, and dewberries 4 feet each way to be tied up to stakes in spring.

Fruit trees of all kinds except figs should preferably be planted in the fall in the South, since the soil does not freeze deeply, and the roots will be putting out new fibres to supply the trees as the buds swell in spring. Buy trees from the nearest good nursery. Get catalogues and make your selections. Do not buy from traveling agents, as you can buy cheaper direct from the nursery. For planting directions, see elsewhere.

Dig horse-radish the last of the month and trim off the side roots to make cuttings for spring planting. Cut the lower end sloping and the top square across so that you will not plant them upside down in spring. The main roots are now to be disposed of or buried for winter family use, covering them with just enough soil to keep them fresh, for frost will not hurt them. The trimmed roots always find a ready market.

Sow seed of Big Boston lettuce in a frame under glass to make plants for setting in other frames in January to follow the Christmas crop, this lettuce to head in late winter and early spring. Do not plant, however, in the same soil which has grown the fall crop. The advantage of having small portable frames is that the succession crops can be grown in fresh soil by simply moving the frames.

About the last of November is a good time to cover the cabbage that has been headed for winter. Turn the heads over toward the north, and bank the soil over the stems and lower part of the head and the open top will be shaded from the winter sun, which does more damage than the cold. Cabbage partly headed will head if buried in this way.

Spinach can of course be cut all winter in the South, but it will be far better if well mulched with stable manure.

Right now I take my little garden plow and throw a furrow to each side of the rows of onions, carrots and beets as a winter protection. The earth will be pulled away from the onion rows in March so that the onions will form on the surface with only the roots in the soil.

Cut out all the blackberry and raspberry canes that fruited

this year if this has not already been done. New plants can now be set. Blackberries and raspberries are planted in rows 6 feet apart and 3 feet in the rows. Dewberries to be tied up to stakes can be set 4 feet each way. The runners should lie on the ground all winter and be tied up in spring.

Prune scuppernong vines in November when needed, for they will bleed less now than if pruned at any other time. The cluster grapes are better left till March.

In the Flower Garden

Plant now any of the hardy bulbs that have not been planted earlier. Late in the month, after the soil has gotten cold, plant the white Roman hyacinths and the Paper-White narcissus and the Chinese Sacred lily, and narcissus tazetta, for in the South these will do as well outside as in the bowls of water in the house. But they can still be planted in the bowls, keeping in the dark till rooted.

Plants of pansies grown from seed sown in August can now be set in cold frames under glass sashes. Set 6 inches apart they will give plenty of flowers in late winter and early spring. Beds outside can also be set with pansies for spring blooming, for they make better flowers early in the spring than after the weather gets hot.

All kinds of bulbs like hyacinths, narcissus and tulip can also be planted in the frames and will give earlier flowers than outside. At the same time the frames will protect them from the cold that often cuts the early blooms in the open ground.

Mignonette seed planted under the sashes will give an abundance of their fragrant spikes of bloom in late winter, and Phlox Drummondi will bloom all winter in the frames.

The beds of bulbs planted in the fall should always have a thick coat of manure on the beds, and the rough part raked off as the plants begin to shoot in early spring. None of the bulbs like manure in direct contact with them, but are greatly helped by top dressings of manure.

If delayed in getting the bulbs of tulips, hyacinths, etc., earlier, they can be planted at any time up to Christmas, but earlier planting is best except for the Paper-White narcissus

and the White Roman hyacinth. In fact, it is well to remember that the planting dates suggested by authorities mean the *best time,* though many things can be planted and many seed sown earlier or later than the dates suggested.

DECEMBER

IF the Wakefield cabbage plants were not set last month they may still be transplanted. In fact, where a hard freeze interfered, I have known them planted in January with success, after the soil had thawed out.

If not already done, get the manure mulch on the whole garden at once. You will get far better results by having manure rotting on the ground all winter than by spreading fresh manure in spring.

On the general truck patch outside, I assume that you sowed crimson clover as a winter cover, which is not available in the garden proper where we should have most of the soil occupied by the winter crops.

But for sweet potatoes especially there is nothing equal to a coat of crimson clover turned under when mature, having the plants set on the general level and the only hilling done in the cultivation with sweeps. With the turned-under clover, the sweet potatoes will need only acid phosphate and some potash when available.

If your sweet potatoes are stored in banks see that the rain is kept off the banks. It will pay well to build a shed over them, for if the water gets through and wets the pine straw they will not keep well. If stored in a curing house watch the temperature closely, and try to keep it not above 50 degrees nor lower than 45 degrees after the potatoes have been dried off at a high heat.

In the lower South the early Irish potatoes may be planted late in this month, but even in north Florida there is danger that they may get up too early and be nipped by the frost in February. I have tried December planting in North Carolina, but there would prefer to wait till February. Of course you can save them when up by throwing a furrow over the tops when frost threatens, and in the lower South it is important to plant early and have the potatoes out of the rush of early spring work.

If not set in November, set cabbage plants now for early spring heading. These winter better if set in open furrows running east and west, and deep enough to cover the entire stem.

In the lower South, cauliflower plants can be set, but in the upper South these will be safer under cloth till February.

The English Broad beans can be planted about Christmas and will come in green with the peas in spring, and are then quite good. They do not mind the cold but succumb soon to heat if planted too late.

Lettuce plants can be set between the early cabbage plants and will usually winter well and head in spring. The Hanson and the Wonderful or Shellem lettuce will be better for this planting than the Big Boston, which runs to seed with the first warmth of spring.

Lettuce in frames should be fully exposed in all mild and sunny weather, and should not be allowed to get too dry.

In the Flower Garden

This is a good time to do mulching. For general mulching either straw or leaves may be used. To mulch roses, use a half-decayed, strawy manure placed 6 inches deep around the bushes.

It may also be well to give some of the tender shrubs and plants a protecting wind-break of boughs or boards.

IV.—SMALL FRUITS

Strawberries

THE most popular and generally grown small fruit is the strawberry. The best time to set strawberry plants in the South is in November or early December. Plants set in November will get a good growth and make a fair crop in the spring. Spring-set plants should not be allowed to fruit, but should have the blooms picked off, so that the plants can get strong. In garden culture the rows may be made 3 feet apart. In field culture where horse-power cultivation is used, the rows should be 4 feet apart.

I prefer not to use stable manure with strawberries, as it brings in too many weeds and grasses. With potash as scarce as it is when this book is written, the best fertilizer we can use is a mixture of equal parts of cottonseed meal and acid phosphate.

Open the furrows and put the fertilizer it at rate of 500 or more pounds an acre and bed on it. Flatten the beds half way and set the plants 15 inches apart in the row. Keep cleanly cultivated during the following summer, and train the runners in along the rows to make a matted row, and keep the middles clean cultivated. After the fruiting season, apply another 500 pounds of the fertilizer mixture and continue the cultivation, pulling out weeds and grass. Then the plants will make strong crowns for the next season's fruiting.

I would only take two crops from a bed, and would set a new bed every fall, for the old bed will get choked with grass and clover, and we get far better fruit by renewing the beds frequently.

Several varieties that fruit continuously through summer and fall have been recently introduced. Of these the Progressive is the best. I find that it is best to treat these almost as annuals; that is, set the plants in spring, keep all the blossoms off till June, and then they will fruit till November. The following spring they will set a full spring crop, and after this is off, turn them under for some later crop, for after they have

made a good spring crop the late summer and fall crop will be small. In the meantime, plant more every spring. They are useful for family consumption and a nearby market, but are hardly of value for distant shipping.

For the annual spring crop the best varieties are Early Ozark for the earliest; then Chesapeake, the best of all; for large berries, Aroma, Big Joe and Amanda, the largest of all.

Dewberries and Blackberries

Dewberries should be planted about 4 feet apart each way, and the canes tied up to stakes in the spring, and clean cultivation given. The same fertilizer as for strawberries will be good for these and for blackberries. They, too, can be planted in the fall. Dewberries, like raspberries, are cut out after fruiting and new canes grown for the next season. These are best allowed to trail along the rows till the following spring and then tied up to the stakes for fruiting.

The earliest and best dewberry for family use is the Austin. It is too soft for shipping, and can only be used at home or a near market. Lucretia is also fine, large and a firm shipping berry. The Atlantic is the latest, as it ripens in August. It is a large, fine berry, and the plants are rather pretty with their finely cut leaves.

The blackberries will need no stakes and should be planted in rows 6 feet apart and 3 feet in the rows. Clean cultivation is needed by these also. After fruiting, cut out the old canes and allow three or four new ones to grow for the next season. Keep all other suckers chopped out or you will soon have a tangled mass. It is well to pinch the tips of the new canes when about 3 feet high to cause them to branch. Dewberries or blackberries can occupy the same place for a number of years if the soil is regularly fertilized.

Of blackberries the Early Harvest is the earliest, and a profuse bearer of medium sized berries, with a flavor peculiar to this variety. El Dorado is a strong grower and produces very large fruits of fine flavor. Blowers is also large and sweet. Joy is one of the newest and very hardy and productive of large berries. Leader is also new, and claimed to be remarkably pro-

ductive—one grower claiming to have made about 8,000 quarts an acre. Nanticoke is a tremendous grower and should be planted 6 feet each way. It is terribly thorny, but is the latest blackberry grown, ripening in August and running into September. The fruit is large and sweet, but too soft to ship; good for home use, but too rank and fierce for the garden proper.

Raspberries

So far as soil conditions and fertilization are concerned, the raspberry needs the same treatment as the blackberry and the same distances in planting. The Black Cap varieties usually do better in the South than the red ones, but all of them can be grown with proper treatment. The red raspberries can be grown without any stakes, but will do better in the garden with strong stakes set in the rows and a wire stretched about 4 feet from the ground, the fruiting canes tied out fan-shaped to this wire and the tips pinched as they get above the wire to make branching. The Black Caps should have the same wire, and the canes pinched and tied out on the wire.

Red raspberries are increased by suckers or cuttings of the roots. The root cuttings make the best plants. They are cut about 3 inches long and buried in boxes of sand in winter, and in the spring planted in rows to make a season's growth before setting where they are to fruit. The Black Caps propagate rapidly if we bury tips of canes in summer, and every tip in the soil will make a new plant by fall. But unless new plants are needed the canes should be kept up to the wire and not allowed to touch the ground, as they will fruit better the next season. Like the blackberries and dewberries, the old fruiting canes must be cut out after fruiting and new canes grown for the next season. The Black Caps not only root at the tips but some of them sucker freely and these must be kept down to prevent the plants getting too thick.

While the Black Cap raspberries and dewberries will root from the tips of the young canes when covered with earth, all the blackberries and raspberries will grow from root cuttings, and the best plants are grown in this way. The long roots are cut into pieces about 3 inches long and buried in the fall in boxes of sand, and in the spring planted in rows about 4 inches

apart in the rows and the rows wide enough for cultivation, and they will make fine plants by fall. This is especially the best way to grow the red raspberries. Plants set in the fall with a good length of cane left will make some fruit the following season, but it is always best to cut them back near the ground to get a strong growth for fruiting the second year. Dewberries root from tips or root cuttings.

Of the class of the red raspberry, there are varieties with red and some with yellow fruit, and seed of the red ones will sometimes produce yellow-fruited plants. The yellow ones make a pretty addition in the garden but the main dependence is usually on the red ones. The most popular red raspberry is the Cuthbert. It is called the "Concord of Raspberries," being as generally planted as the Concord among grapes. It is a strong grower and good bearer. Golden Queen is yellow-fruited and was grown from seed of the Cuthbert. Ohta is a new red raspberry that has proved to be of the highest quality. St. Regis is a red berry which has been largely grown of late years. It fruits both spring and fall, but in my garden I have found it very unproductive, making a small crop at both seasons, so I do not advise planting it. Of the Black Cap varieties there are some which make purple fruit and are more acid than black ones. The Cumberland is the largest berry of the black ones, and is medium early. Black Pearl is fine and early and Gregg is as good a late one as any.

Currants and Gooseberries

While the red currants, such as the Cherry and Wilder, will make some fruit in the South when planted in strong, moist clay loam, they do not fruit as they do in the North, and the gooseberry is uniformly unproductive in the South and becomes a cumberer of the ground. In the cool mountain valleys both these fruits may be grown, but in all the warmer sections of the South they will give very little fruit.

Grapes

All the varieties of our native grapes flourish in the South. The varieties of the Rotundifolia or Vulpina class to which the

Scuppernong belongs come to the greatest perfection in the sandy soils of the coast region, though they may be grown anywhere outside the high mountain region.

The Scuppernong and the black-fruited varieties are all generally grown on arbors, and as a rule their pruning is neglected till the vines become a mass of wood and consequently less productive. These grapes should be pruned as regularly as any, but the only time to do it safely is in November. The pruning should consist of cutting out all the dead and stunted wood and training out all the one-year and two-year canes, for they fruit on the two-year wood. The Scuppernong very commonly makes imperfect flowers that are deficient in pollen, and if there are not plenty of wild barren male plants growing around, they may be unproductive. The best way to treat an unproductive Scuppernong is to plant a barren male muscadine nearby so that the bees will carry the pollen to the scuppernong, while the male vine will, of course, make no fruit itself.

While the Scuppernong and its class are always grown on arbors, it is also true that horizontal training is best in the South for any grape rather than the vertical trellis. In extended experiments in North Carolina with the bunch grapes of the Labrusca and Aestivalis class, I found that the best method is to plant the vines in rows 10 feet apart and 8 feet in the rows. Then set stout posts along the rows about 10 feet apart and about 6 feet high. Across the top of these bolt cross pieces of 3 x 4 scantling 2½ feet long. Then stretch a wire along the top of the post and a wire to each end of the crossbar, making three horizontal wires. The first year one strong cane is grown to a stake till it reaches the central wire. In spring this is pruned to the height of the wire and two canes or arms are grown each way on the central wire. These are pruned to 4 feet. The fruiting shoots then are trained to hang over the outer wires and the fruit clusters hang beneath. Two new canes are grown the same season from the centre, and the old canes cut out the following March, and this renewal is kept up from year to year.

Of course the soil must be kept manured and fertilized every year to maintain a strong growth. While the only proper time to prune the Scuppernong and its class is in November, as

they bleed less at that time, the cluster grapes should not be pruned till early March. If these are pruned in the fall they are apt to make an untimely start in the spring and a return of cold will kill the young shoots.

Of the Scuppernong class, of course, the true Scuppernong is desirable. The James makes larger fruits and is earlier, and is black in color. Flowers is also good, and there are many good black seedlings of the Scuppernong. The Mish is smaller than the James, and one of the best bearers.

Of the bunch grapes the best varieties for the South are the Concord, Niagara, Delaware, Lutie, Diamond, and Green Mountain. Moore's Early is similar to Concord but earlier. Brighton is a very fine early red grape which needs to be set with other varieties to insure good setting of the fruit.

All grapes can be well grown from layers, but that is about the only good way to increase the Scuppernong and its class. To grow the plants get a good long cane from the base of the vine and open a trench about 3 or 4 inches deep. Lay the cane in this and peg it fast and then wait till the shoots from the eyes have grown above the surface. Then fill the trench with the soil and pack it firmly. In the fall you will find roots made at every joint and each shoot can be separated to form a new vine.

The bunch grapes can also be grown in the same way, but are usually grown from cuttings. The cuttings are made with three joints of the season's growth in the fall. Cut square across under the lower bud and 2 inches above the upper one. Tie the cuttings in bundles with a label of the name of the variety in each and bury them outdoors, upside down, till spring. For some unknown reason they root better in spring when buried upside down. Then, in spring, set the cuttings in rows for cultivation, setting them so that the top bud is about an inch above the surface. Nearly all of them will be well rooted in the fall and can then be transplanted to the vineyard or garden.

V.—PLANT DISEASES AND INSECTS

How to Treat Each Vegetable, Berry, Flower, Etc., for Diseases and Pests

(*The reader will note that here, as in the general directions for cultivating the various vegetables given earlier in this volume, the plants are treated in alphabetical order.*)

THE spray pump and materials for fighting the various diseases of plants and for warding off the attacks of insect enemies constitute an important part of the garden equipment. Nearly every crop we grow or vine or shrub we plant has its diseases and its insect enemies.

Experiment station investigators have studied the nature of the numerous fungus diseases that attack plants, and have studied the life history and habits of the insects, and have worked out remedies and preventives.

Bordeaux mixture is the most generally used spraying material for prevention of the various mildews, blights, and fungus diseases in general. To make the mixture, slake 5 pounds of fresh lime in a barrel, and then add water enough to make it 25 gallons. In another cask hang 5 pounds of copper sulfate in a flour-sack in hot water till dissolved. Then make this 25 gallons. Then pour the two together slowly, stirring all the time, and it is ready to strain into the sprayer. Use while fresh.

The uses of bordeaux mixture are multitudinous. It is used for spraying tomato plants, in the seedbed and several times after setting out, to prevent leaf blight and rot. It is used for spraying grape vines in early spring and twice or three times after blooming, to ward off mildew and rot. It is used for spraying Irish potatoes to prevent blight, and with 1½ pounds of lead arsenate added to the 50 gallons, it will prevent blight and destroy the Colorado beetles at the same time. It is used for spraying orchards to prevent scab, and with the poison added it is used for spraying apple trees just as the bloom falls, to destroy the codling moth larvae. And in many other cases it is used both as a fungicide and an insecticide.

Beans (Snap) are subject to pod rust or anthracnose. This is conveyed generally by affected seed, and if healthy seed are planted the disease may be prevented by keeping the plants covered with the bordeaux mixture.

Beets—The bordeaux mixture is also used for spraying beets to prevent leaf spot and root rot.

Cabbage in some soils are affected by club root, large knots forming on the root and checking the growth, caused by a fungus growth. This disease can be prevented by heavily liming the soil. Aphides or plant lice also infest cabbages. The best thing to destroy these is tobacco in some form or the commercial sulfate of nicotine sold as "Black Leaf 40" by seedsmen. This will destroy plant lice of all kinds. Aphine is another similar article. Of late years another disease has attacked cabbages in the South. This is called "yellow side" and other common names. It is caused by a minute fusarium fungus, and so far no preventive has been found, and all that can be recommended is to avoid infected soil and never repeat cabbages after cabbages or turnips or radishes. The green worms or caterpillars which riddle the leaves of the late cabbages can be controlled by spraying with lead arsenate 1 pound in 30 gallons of water. I have also found that taking a watering can and dousing the cabbages every week with the soapsuds from the family wash will keep the worms down and promote the growth of the cabbage. In fact, anything that promotes a rapid growth will drive the cabbages ahead of the worms. The harlequin bug (murgantia histrionica), called also terrapin bug, is one of the worst enemies of the cabbage, and no spraying that is strong enough to kill them can be used without also damaging the plants. The best plan is to sow mustard or turnips between the cabbage rows. The bugs prefer these to the cabbages, and will gather on them and can then be dosed with pure kerosene, killing both plants and insects.

Celery is affected by sun-scald in dry situations and also by leaf blight. This can be prevented by spraying with the bordeaux mixture.

Chrysanthemums are attacked by black aphides, and the sulfate of nicotine will destroy these, and spraying with bordeaux mixture will keep the foliage clear of fungus leaf spot.

Cucumbers, squash and cantaloupes are subject to mildew and leaf blight, which can be prevented by spraying with bordeaux mixture. But for these a milder mixture should be used—4 pounds of copper sulfate and 6 pounds of lime in 50 gallons of water. The worms that bore into cantaloupes and cucumbers can be destroyed by adding 1½ pounds lead arsenate to 50 gallons of the bordeaux mixture, thus keeping the foliage good and destroying the worms at the same time. The spraying must be repeated several times.

Egg plants are subject to anthracnose and also to leaf spot, both of which can be prevented by using healthy seed and regular spraying. They are also attacked in some soils by the southern bacterial blight, which is so troublesome with the tomato in the South. The only way to avoid this is to plant in uninfected soil. Much can be done toward breeding a blight-resistant egg plant or tomato by taking seed from plants that survive while others around them die.

Grapevines are subject to anthracnose or bird's eye rot. This disease affects not only the fruit but all parts of the vine. This is controlled by painting the dormant canes with a solution of sulfuric acid and sulfate of iron with a brush. It blackens the canes and this shows when it is effective. For black rot spray the vines before the buds swell and spray the trellis or arbor, too, with full strength bordeaux mixture. Then, after blooming it over, spray again and repeat every ten days till the grapes are half grown. This will also prevent mildew, except the powdery mildew which is best treated by dusting with flowers of sulfur.

Onions are sometimes attacked by mildew. Destroy all affected plants and then spray with bordeaux mixture. For the onion maggot, open a small furrow along the rows a little distance from the plants and pour into it carbon bi-sulfide and cover at once.

Garden peas in hot weather often mildew. Bordeaux mixture with some soapsuds added to make it stick better will cure this. Peas sown for a fall crop are more apt to be affected than the spring crop.

Dry peas, beans and corn are all liable to be attacked by

weevils which have laid eggs in the green peas, etc., these now hatching out and making holes in the seed. To destroy the weevils put the seed in a close box and then pour some carbon bi-sulfide in a pan or saucer and set on top of the seed and close up tight till the mixture has all evaporated. The fumes are heavier than air and will sink through the mass of seed and kill the weevils. Keep the chemical away from all fire, for the fumes will explode more quickly than gasoline.

Irish potatoes are very subject to insect pests and fungus diseases. In the spring the flea beetles make the starting points for the early blight, causing the tops to die unseasonably, and the late blight or rot affects tops and tubers alike. Then, the Colorado beetle is always with us, and the potato grower must fight for his crop. The early blight can be warded off by spraying with the bordeaux mixture, and the tops kept healthy to maturity. At the same time we can destroy the Colorado beetle and the flea beetle by adding 1½ pounds of lead arsenate to each 50 gallons of the bordeaux mixture. The lead or the zinc arsenate will be better than Paris green, since these forms of arsenate do not injure the leaves as Paris green sometimes does, and they keep mixed with the bordeaux better than Paris green, and also stick better. The spraying should begin as soon as the potatoes are well above ground, for the Colorado beetle begins to crawl around and lay eggs as soon as the potatoes appear, and while these old beetles eat little, they do eat some, and every one killed means the prevention of hundreds of the destructive larvae. The spraying should be repeated every ten days—or sooner, if rain washes off the poison. Late Irish potatoes are often less troubled by the beetles than the early crop, but the spraying should not be omitted, for the worst disease of the potato is then apt to attack them—the late blight or rot. Early and regular spraying will surely prevent this disease.

Blackberries and raspberries are sometimes attacked by what is called the orange rust, the stems and foliage becoming covered with an orange colored fungus. The only thing to do in this case is to dig out and burn every infested plant. Spraying before an attack may prevent it, but after it gets there, no amount of spraying will cure it.

Roses are attacked by mildew, causing the leaves to curl and wither. Roses also sometimes have black spots on the leaves caused by a different fungus. These can be prevented by early and repeated spraying with bordeaux mixture, but this makes the plants unsightly, and it is better to begin to spray early with a solution of formaldehyde 1 pint in 30 gallons of water. The rambler roses are peculiarly liable to mildew and the spraying should begin as soon as the leaves are grown, and then after the bloom is over. In some sections the rose bug or rose chafer is the worst pest of the season. For a remedy, begin to spray as soon as the plants show signs of bloom with a mixture of lead arsenate 1 ounce to a gallon of water with a quart of corn syrup to make it stick. If rain comes, it must be at once repeated and kept up till the attack is over.

Spinach is often attackd by anthracnose and mildew, but the copper sprays cannot be used on these edible leaves, and we can only hope that the plants may outgrow the trouble, or plow them under if they don't.

Strawberries are subject to leaf blight, rust or mildew, all which may be prevented by spraying with bordeaux mixture when not in fruit. They are also attacked by various insects that can be sprayed with lead arsenate when there is no fruit on the plants. But the worst insect is the weevil that attacks the blossoms, and for this no effective remedy has yet been discovered. Consult Farmers' Bulletins Nos. 80, 132 and 243 of the Department of Agriculture, Washington, D. C., which will be sent on request.

Sweet potatoes suffer chiefly from black rot. The way to avoid this is never to bed any potatoes showing brown blotches on the skin, and never bed twice in the same place. To get healthy potatoes for bedding make cuttings from healthy vines in August and plant these to make a crop of small potatoes for the next spring's bedding. With proper care the crop can be kept free from disease if the same land is not used year after year for the crop.

Tomatoes are subject to leaf blight, and various fungus rots, all of which can be prevented by early and repeated spraying with bordeaux mixture, except what is called the tip rot,

which does not seem to be caused by fungus but by alternations of drought and wet. Spray in the seedbed and then after setting the plants spray every ten days till the fruit is half grown. Spray with lead arsenate for the Colorado beetle. The big green tobacco worms are often troublesome, but hand picking will easily keep them down. Tomatoes are also affected by two species of wilt. The first is the Fusarium wilt. This can be overcome by breeding resistant strains, by taking seed from a plant that remains healthy while others around it die. Then by regular selection of the most resistant plants for seed, we can grow a healthy crop. The other and worse wilt in the South is the bacterial wilt. This wilt manifests itself by the sudden collapse of the plant when full of green fruit. There is no remedy for this wilt, and all that can be done is to plant in uninfected soil.

Turnips are attacked by the harlequin or terrapin bug. About the best preventive is to sow a lot of mustard early before sowing the turnips and nearby the turnips. The bugs will gather on the mustard and can be destroyed by spraying with clear kerosene. This, of course, destroys the mustard also and it is well to make another sowing of this to come in along with the turnips to gather more of the bugs. Turnips are also attacked by plant lice or aphides. For these spray with a strong decoction of tobacco stems in water or with some of the concentrated sulfate of nicotine preparations. There are several of these nicotine preparations. One sold under the name of "Black Leaf 40" is made by the Tobacco Products Co., of Louisville, Ky. Another is known as Aphine, and is made by the Aphine Company, of Madison, N. J. Most of the leading seedsmen keep these on sale. They have to be largely diluted with water for spraying. But bear in mind that no treatment will avail completely if you wait for disease to develop on your plants. We spray to prevent rather than to cure the fungous diseases that attack our garden plants.

VI—HANDY REFERENCE TABLES

STANDARD VARIETIES OF GARDEN VEGETABLES

The amateur gardener is often puzzled by the long list of varieties of the different vegetables given in seed catalogs. Hence, as a matter of assistance, I give the following list of varieties that have proven good. Doubtless there are other good varieties, but many of those given in the catalogs are so much alike that it is needless to extend the list.

Asparagus—The Palmetto has generally proved best.

Snap Beans—Black Valentine for earliest, Red Valentine, Burpee's Green Pod Stringless. Celestial for wax beans. Of the pole varieties, Kentucky Wonder, Berger's Green Pod Stringless. The last is white and good either for snap or dry beans.

Lima Beans—The large white lima beans are not heavy croppers in the South, while the small lima or butter bean is a good producer. Of the larger limas the Bush Fordhook is one of the best. It belongs to the thick or potato lima class. Henderson's Bush Lima belongs to the small lima class. I have found the Fordhook productive and good. The climbing small lima grown on chicken wire netting will give an abundant crop, and to my taste is better than any large lima.

Beets—For the earliest the Egyptian is good, but soon gets poor. The old Bassano beet is early and of fine quality; its light color and big top have prevented its being used by the market growers, though there is none better for family use. For the late crop Bastian's Blood turnip is good. The best variety of the chard beet is the Lucullus. This is grown only for greens.

Cabbage—For fall sowing and setting the Early Jersey Wakefield is best. Copenhagen Market is good to sow in frames in winter for spring setting to follow the Wakefield; it runs to seed if sown in the fall. Early Summer and Succession are good for late summer and early fall. For late winter cabbage a good strain of the Late Flat Dutch is as good as any. The Danish Ball Head is also good. Drumhead Savoy is also fine.

Carrots—For the earliest Early French Forcing, then Chantenay and for late the Danvers Half-Long.

Cauliflower—Extra Early Snowball.

Celery—The self blanching varieties are good for the North but are more ornamental than good. Celery is a late and winter crop in the South and only the green sorts that are blanched in earth should be used. The Giant Pascal is as good as any.

Corn—For the earliest planting the Norfolk Market corn. Then follow with the sugar corn, Kendall's Giant, Country Gentleman and Stowell's Evergreen. The extra early sugar corns do not amount to much in the South.

Cucumbers—Davis Perfect and Klondyke are good. The first named is also best for late planting for pickles. It has also been sold under the name of Challenge.

Egg Plants—Black Beauty is the earliest and most productive. New York Improved is rather a more robust grower and makes larger fruits.

Endive—Green Curled.

Horse Radish—Maliner Kren or Bohemian.

Kale—Green Curled Scotch or Norfolk Favorite Curled.

Kohl Rabi—Early White Vienna.

Leeks—Mammoth Carentan and American Flag.

Lettuce—For fall crop in open ground, Hanson. For frames in early winter, Big Boston. For spring setting outdoors, Hanson and Wonderful. For a curled leaf lettuce in fall, Grand Rapids.

Muskmelons—Better known as Cantaloupes in the South. Eden Gem and Knight for green-fleshed sorts. Emerald Gem and Tait's Ideal for yellow-fleshed varieties. Honey Dew is new and good.

Mustard—Southern Curled.

Okra—Perkins Mammoth, and Kleckley's Favorite. The first is green-podded and the last white-podded.

Onions—For early green onions, Norfolk Queen and Pearl. For the earliest ripe onions, Yellow Potato. For sowing under glass in winter and transplanting in spring, Prizetaker and Giant Gibraltar. For early spring sowing in open ground, Southport Globe, either yellow or white.

Parsley—Moss Curled.

Parsnips—Hollow Crown.

Peppers—For sweet peppers, Pimiento, Ruby King. For hot peppers, Long Cayenne and Tobasco. Do not plant hot and sweet near each other.

Garden Peas—Extra Early Nonpareil, Sutton's Excelsior, Thomas Laxton. For late peas, Stratagem, Telephone, and Champion of England.

Potatoes—Early Irish Cobbler. Beauty, White Bliss. Late potatoes, Rural New Yorker No. 2, Sir Walter Raleigh. Plant cold storage seed of the early varieties and make seed for the next spring planting.

Radishes—Early White-Tipped Scarlet turnip, Earliest White Globe. For fall and winter sorts, Celestial and Chinese Scarlet.

Rhubarb—Linnaeus.

Salsify—Sandwich Island.

Spinach—Round-Seeded Savoy.

Tomatoes—For earliest, Bonny Best. For main crop, Success, Matchless or Globe.

Turnips—For early spring or early fall, Milan; second early, Strap Leaf; for winter, Purple Top Globe and Yellow Aberdeen; for ruta bagas, American Purple-Top.

Watermelons—McIver Sugar or Wonderful, Kleckley Sweet, and Tom Watson.

QUANTITIES OF SEED NEEDED FOR 100 FEET OF ROW

Asparagus—One ounce.
Beans, bush—One quart.
Beans, pole—One pint in hills.
Beets—Two ounces.
Beets, chard—One ounce.
Canteloupes—Two ounces.
Carrots—One ounce.
Celery—One ounce.
Corn—One pint in hills.
Cucumbers—One ounce in hills.
Endive—One ounce.
Kale—One to two ounces.
Kohl Rabi—One ounce.
Leek—One ounce.
Lettuce—One ounce.
Mustard—One ounce.
Okra—One ounce.
Onion—One ounce.
Onion Sets—Two quarts.
Parsley—One ounce.
Parsnips—One ounce.
Peas—One quart.
Potatoes—Four Quarts.
Radishes—One ounce.
Salsify—Two ounces.
Spinach—Two ounces.
Squash—One ounce.
Turnips—One ounce.

Of **cabbage** seed sow one ounce for 3000 plants; of **tomato** seed, one ounce for 1500 plants; **egg plant,** one ounce for 1000 plants; **watermelon,** one ounce to 25 hills; of **rhubard** roots put 25 to 100 feet; and of **horseradish,** 100 to 109 feet.

STORING VEGETABLES

In the South as a rule not enough attention is given to storing vegetables for winter use. I hope the following hints on this subject will be found useful:

Late Beets—These are better off in the rows where they grow. As the weather gets cold throw a light furrow to each side of the rows.

Carrots—Keep in same way as beets. The frost seems to sweeten them.

Late Cabbage—These should head in late November or early December to keep well in winter. When really cold weather seems at hand turn the heads over to the north and cover the stem and lower part of the head with soil. The top turned away from the winter sun is left open.

Collards—Treat in same way as late cabbage.

Celery—If grown in the Baltimore bed system, the final covering should be made just as hard freezing is expected. Then cover the bed well with pine straw, using bean poles or corn stalks on top to prevent its blowing off. If grown in rows the celery should be lifted and set upright in narrow trenches made as deep as the celery is tall. Then cover with two planks nailed V-shape as a roof, using some straw in cold weather.

Horseradish—Dig the roots in November. Trim the side roots off and tie in bunches for spring planting. Grind the main roots for use or sale or ship and sell whole.

Leeks—Let these remain right where they grew, as they are perfectly hardy and can be taken up as needed in winter. They are milder than onions and make a nice dish till green onions come in the spring.

Onions—Keep in a totally dark, cold place. Spread out in a tight outhouse and covered with pine straw, they will be all right. Slight freezing will do no harm but warmth will set them to sprouting.

Parsnips and Salsify—These are perfectly hardy and should remain right where they grew.

Irish Potatoes—These can be kept in heaps covered with earth enough to prevent actual freezing, but maintain a temperature little above freezing. If in a cellar, make it totally dark and keep the temperature as low as practicable without freezing.

Spinach—To keep spinach in good condition for cutting, a mulch of manure between the rows is very good and will keep it growing fresh all winter.

Turnips—Those wanted for table use should be lifted, trimmed and put in heaps and covered with earth. Those sowed for spring greens can be better wintered by covering with green pine boughs.

Sweet Potatoes—These are best kept in a house built for the purpose where a high temperature can be maintained till the potatoes are cured and then a temperature of 45 to 50 degrees during the winter and total darkness. In banks or heaps they should be piled on a thick bed of pine straw, and covered with pine straw thickly. Then build a shed over the banks and let stand till the weather threatens to turn cold. Then cover thickly with earth. The shed will keep the hill dry, and dry earth keeps out frost better than wet.

THE NUMBER OF PLANTS TO AN ACRE.

An acre contains 43,560 square feet. To find the number of plants in an acre at any distance apart, multiply the one distance by the other to give you the square feet in each space and use this to divide 43,560. Thus 3 x 3 feet makes 9 square feet, which divided into 43,560 gives 4840, the number of plants in the acre at these distances. The following table has been calculated for almost any distance ever needed.

Distance Apart	No. Plants Per Acre
12 by 1 inch	522720
12 by 3 inches	174240
18 by 1 inch	348480
18 by 3 inches	116160
18 by 12 inches	29040
18 by 18 inches	19360
24 by 12 inches	261360
24 by 18 inches	15520
30 by 1 inch	209088
30 by 6 inches	34848
30 by 12 inches	17424
30 by 24 inches	8712
40 by 30 inches	9970
36 by 3 inches	58080
36 by 30 inches	5808
42 by 24 inches	6223
42 by 36 inches	4148
42 by 42 inches	3556
48 by 18 inches	7790
6 by 6 inches	174240

Distance Apart	No. Plants Per Acre
1 foot by 1 foot	43560
1 foot by 2 feet	21780
1 foot by 3 feet	14520
1½ feet by 1½ feet	19360
2 feet by 2 feet	10890
2 feet by 3 feet	7260
3 feet by 3 feet	4840
4 feet by 1 foot	10890
4 feet by 2 feet	5445
4 feet by 3 feet	3630
4 feet by 4 feet	2722
5 feet by 5 feet	1742
6 feet by 6 feet	1210
7 feet by 7 feet	888
8 feet by 8 feet	680
9 feet by 9 feet	537
10 feet by 10 feet	435
12 feet by 12 feet	302
20 feet by 20 feet	108
25 feet by 25 feet	60

PLANTING TABLE—SHOWING TIME, DEPTH, VARIETY, ETC.

Perhaps as good a vegetable planting table as has yet been issued for the general South is that sent out by the Georgia Experiment Station. The first dates given for spring planting in this table and the last dates for fall planting will apply to the **Lower South.** The last dates given for spring planting and the first dates for fall planting are intended for the **Upper South.** The average will be found to be the proper planting time for the **Central South.**

Vegetables	Time of Planting	Depth to Plant	Width of Rows, and Space in Drills	Standard Varieties	Remarks
Asparagus (roots)	Nov. 15 to March	5 to 7 in.	Rows 3 to 5 ft. apart; 2 to 3 ft in the row	Palmetto Colossal Ulm	Rich, loose soil required
Beans (bush, snap)	March to May July to Aug. 15	1 to 2 in.	2½ to 3 ft. rows; 2 in. drill	Valentine Refugee, Stringless Green Pod	Thin to 6 in. in drill
Beans (pole snap or pole lima)	April to August	1 to 2 in.	Rows 3 ft.; 6 in. in drill	Kentucky Wonder Cornfield Mammoth Lima	Do well when planted with corn
Beets (Garden)	Feb. 15 to May 1; July to Sept.	1 in.	Rows 18 in. to 2½ ft.; sow thinly in drill	Eclipse Blood Turnip Egyptian	Thin to 4 in. in the drill
Brussel Sprouts	June to July; transplant in August	½ in.; set plants deeper	2½ to 3 ft. rows; 1 to 1½ ft. in drills	Matchless. Perfection	
Cabbage	Jan. to April; June to Sept.	Set plants in soil to bottom leaves	Rows 2½ to 3 ft.; 1½ to 2 ft. in the drill	Wakefield Succession Drumhead Flat Dutch	
Carrots	Jan. 15 to April; July to Sept.	½ to 1 in.	Rows 18 in. to 2 ft.; sow thinly	Chantenay Half Long Scarlet Long Orange	Soak seed before planting
Cantaloupe	March 15 to May	1 to 2 in.	Rows 4½ ft.; planted 3 ft. in drill	Rocky Ford Eden Gem Pink Queen	Thin to 2 plants to a hill

Cauliflower	Jan. and Feb. in hot bed; May and June	½ to 1 in.	Rows 2½ to 3 ft.; 18 in. in drill	Snowball Dwarf Erfurt	Transplant when 3 in. high
Celery	April to July	½ to 1 in.	3½ to 4 ft. rows; 8 in. in drill	White Plume Self Blanching Giant Pascal	Sow in moist soil
Collards	June to August	½ to 1 in.	Rows 3 ft.; 18 to 24 in. in drill	Georgia or Southern	
Corn (sweet)	March to July	2 in.	Rows 3 to 4 ft.; 12 to 18 in. in drill	Country Gentleman Early Adams Evergreen	Field corn can be used
Cress (water)	Sow in spring	1 in.	Sow thinly	Water Cress	Sow along stream or in damp place
Cucumbers	March 15 to July	1 to 2 in.	Rows 3 to 4 ft.; 2 ft. in drill	White Spine Long Green Klondyke	Plant early to avoid pickle worm
Egg Plant	Feb. in hot beds; set plants Apr. to July	½ to 1 in.	Rows 3 to 4 ft.; 3 ft. in drill	Black Beauty Florida High Bush Improved Purple	Attacked by potato bugs
Endive	August and Sept.	½ to 1 in.	Rows 18 in. to 2 ft. apart; sow thin	Green Curled White Curled	Tie up leaves to blanch
Kale	Jan. to March; Aug. to Oct.	½ to 1 in.	Rows 18 in. to 2 ft.; or broadcast	Spring Kale Blue Kale Curled Scotch	Good winter greens
Kohl-Rabi	March to August	½ to 1 in.	Rows 2 ft. apart 6 to 8 in. in drill	White Vienna Purple Vienna	Plants may be grown and transplanted
Leek	Sow in spring	½ to 1 in.	In beds; or rows 1 ft. apart	Large Flag	May be transplanted
Lettuce	Jan. to April; July to Nov.	½ to 1 in.	Rows 18 in. to 2 ft.; 6x6 in. in cold frames	Big Boston Tennis Ball Grand Rapids	
Mustard	Sow in spring and fall	½ to 1 in.	Rows 18 in. apart; or broadcast	Giant Southern Curled Chinese	Don't allow to go to seed

PLANTING TABLE—SHOWING TIME, DEPTH, VARIETY, ETC.—(Continued)

Vegetables	Time of Planting	Depth to Plant	Width of Rows, and Space in Drills	Standard Varieties	Remarks
Okra	March 15 to May	1 to 2 in.	Rows 3 ft. apart; 2 ft. in drill	White Velvet Kleckley's Improved Dwarf	Soak seed over night
Onion Sets	Jan. to April Sept. to Nov.	1 to 2 in.	Rows 18 in. to 2 ft. apart; 4 to 6 in. in drill	Bermuda Yellow Danver Prize Taker Silver Skin	Seed may be sown in October in open
Parsley	Feb. to April August to Oct.	½ to 1 in.	Rows 12 to 18 in. apart; or in beds	Dwarf Perfection Moss Curled	Soak seed before planting
Parsnips	Jan. to April Aug. to Oct.	1 in.	Rows 18 in. to 2 ft.; sow thinly in drill	Guernsey Hollow Crown Hollow Hub	Sow in rich, loamy soil
English Peas	Dec. to March; Aug. for fall crop	1½ to 2 in.	Rows 2½ to 3 ft.; 4 to 6 in. in the drill	Alaska Excelsior Eclipse Telephone Marrowfat	Plant every 2 weeks for succession
Pepper	Feb. in hot beds; transplant April to July	½ in.	Rows 3 to 3½ ft.; 3 ft. in drill	Ruby King Large Bell Chinese Giant Spanish Pimiento	Transplant carefully
Potatoes (Irish)	Jan. 15 to April 1; June 15 to Aug. 1, 2nd crop	4 to 6 in.	Rows 3 ft.; 12 to 18 in. in drill	Early Rose Bliss Triumph I. Cobbler Lookout Mountain (late)	Plant sound, clean seed
Potatoes (Sweet)	Bed Feb. and March; in open March to June	Cover seed 2 in.	Rows 3 ft.; 18 to 24 in. in drill	Nancy Hall Porto Rico Triumph	
Radish	Jan. to May; Aug. to Nov.		Rows 12 to 18 in. apart	Scarlet Globe French Breakfast White Icicle	May be sown with carrots or parsley

Rape	Feb. to April; July to Oct.	½ to 1 in.	Rows 2 ft. apart, or broadcast	Dwarf Essex	Keep cut back for greens
Rhubarb	Nov. and Feb.	½ to 1 in. Cover roots 4 in.	Rows 3 ft.; or in beds	Victoria Linnaeus Mammoth Red	Adapted to northern part of state
Rutabaga	July to Sept.	½ to 1 in.	Rows 18 in. to 2½ ft.; sow thinly	Pulple Top Yellow Russian Breadstone	
Salsify	March to May	½ to 1 in.	Rows 18 in. to 2 ft.; 4 to 6 in. in drill	Mammoth Sandwich Island	Deep rich soil
Spinach	Jan. to April; Aug. to Nov.	1 in.	Rows 18 in. to 2 ft.; sow thinly	New Zealand Curled Savoy Aragon	Requires rich soil
Squash	March 15th to June 1	1 to 2 in.	Rows 3 to 4 ft.; 2 to 3 ft. in drill	Yellow Crookneck White Bush	Thin to 2 plants per hill
Swiss Chard	Feb. to April; July to Oct.	1 in.	Rows 18 in. to 2 ft.; sow thinly	Giant Lucullus	Tie up leaves to blanch
Tomatoes	Feb., in hot beds; set plants April to July	½ in. for seed	Rows 3½ to 4 ft.; 3 to 4 ft. in drill	Stone Earliana Livingston Beauty	Stake and prune
Turnips	Jan. to March; Aug. to Oct.	1 in.	Rows 18 in. to 2½ ft.; or broadcast	Purple Top White Egg Seven Top Yellow Aberdeen	
Watermelon	March to June	1 to 2 in.	6 to 10 ft. checks	Kleckley's Sweet Rattlesnake Watson	Thin to 2 plants in hill

A Fall and Winter Garden: How to Have One

Nearly every farmer has a spring and summer garden, but too many farmers fail to have a succession of vegetables. Planting for a fall and winter garden should really be as important a matter as planting for a spring and summer garden. The following table shows when and what to plant for the fall and winter garden:

Vegetable	Time of Planting	Depth to Plant
Asparagus	November 15—December	6 to 8 inches
Beans (bush)	July—August 15	2 inches
Beets	June, July	½ inch
Cabbage (late)	July, September	Plants 2 to 4 inches
Carrots	June, July	½ inch
Cantaloupe	June, July 15	1 inch
Celery	August—September	Seed shallow, plants 2 to 3 inches
Corn Salad	September—October	½ inch
Cucumber	July	½ inch
Kale	October—November	½ inch
Lettuce	July and succession	¼ inch
Mustard	October	½ inch
Onion (seed)	October, in frames	1 inch
Onion (sets)	September—October	2½ inches
Parsley	August—September	½ inch
Peas	August	2 inches
Potatoes (Irish)	July—August 15	3 to 4 inches
Potatoes (sweet)	June—July 15	3 to 4 inches
Radish	July and succession	½ inch
Spinach	September—October	½ inch
Salsify	July	½ to 1 inch
Tomato	June—July	Plants 3 to 4 inches
Turnip	July—September	1 inch

What to Plant in the Garden each Month

The following table was prepared for the central part of North Carolina. For places in other parts of the South the time of planting should vary from one to three weeks, according to location, elevation, etc.:

Time to Plant

(Plants marked with a "T" are to be sowed in beds and transplanted.)

January—Garden peas, kale, mustard, Irish potatoes, radish.

February—Asparagus roots, beets, carrots, herbs, kale, horse radish, Irish potatoes, lettuce, onion, mustard, pepper (T), early peas, rape, radish, spinach, spring turnips, strawberry plant.

March—Artichoke, artichoke roots, asparagus roots, asparagus seed, beet, brussels sprouts, corn, cabbage (T), carrot, kale, egg plant (T), herbs, horse radish, kale, lettuce (T), mustard, onion (T), onion sets, parsley, parsnip, English peas, Irish potatoes, pepper (T), rape, radish, spinach, spring turnip, tomato (T), strawberry plants.

April—Artichoke, artichoke roots, snap beans, lima beans, beet, cabbage, broccoli (T), cabbage (T), carrot, celery (T), cauliflower (T), corn, cucumber, egg plant (T), endive, horse radish, kale, kohlrabi, lettuce, melons, kale, mint roots, onion, okra, onion sets, parsley, parsnip, peas, pepper, Irish potatoes, radish, salsify, tomato (T), squash, sweet potatoes, strawberry plant.

May—Snap bean, lima beans, beet, cabbage (T), carrot, corn, celery (T), cucumber, kohlrabi, kale, egg plant (T), endive, lettuce (T), melons, mint roots, okra, pepper (T), parsley, parsnip, peas, pepper, pumpkin, radish, rape, salsify, squash, tomato, sweet potatoes.

June—Snap beans, lima beans, beet, cabbage (T), collard (T), carrot, celery (T), cucumber, corn, lettuce, melons, okra, pumpkin, radish, squash, tomato.

July—Snap beans, beet, cabbage (T), carrot, collard (T), corn, cucumber, Scotch kale, lettuce, okra, pumpkin, radish, salsify, turnip.

August—Snap beans, beet, Swiss chard, carrot, collard (T), dandelion, kale, kohlrabi, mustard, Irish potatoes, rape, radish, spinach, turnip, strawberry plants.

September—Snap beans, beet, cabbage (T), brussels sprouts (T), carrot, cauliflower, cress, kale, lettuce (T), mustard, onion (T), onion sets, parsley, rape, rutabaga, radish, spinach, turnip, strawberry plants.

October—Cabbage (T), cauliflower (T), kale, lettuce (T), onion, onion sets, rape, radish, spinach, turnip, strawberry plants, turnip for salad.

November—Broccoli (T), radish, cauliflower (T), mustard, rape, spinach, turnip for salad.

January—Beet, forcing carrot, egg plant, radish, tomato.

Plant	Disease and Symptoms	Control Measures	Remarks
Asparagus..	Rust: Reddish or black pustles on stem and branches	Spray with bordeaux 5-5-50, containing a sticker of resin-sal soda soap, once or twice a week all season	Fertilize and cultivate thoroughly. During cutting season permit no plants to mature along road way, etc.
Bean.....	Anthracnose: Circular, brown or purplish spots on pods, stems and leaves..	Plant clean seed obtained by sorting for absolutely clean pods. Spray with bordeaux 5-5-50	Spray when plants first appear, when first pair of leaves are expanded and when pods have set.
Bean.....	Bacterial Blight: Large dead spots on leaves; watery spots on pods	Spray with bordeaux as for anthracnose	Difficult to control.
Bean.....	Rust: Rusty spots on leaves	Burn old leaves and vines each year	Plant resistant varieties.
Bean.....	Root and Stem-rot: White moldy growth on pods and at base of stem...	Good drainage, liming of soil. In greenhouse sterilization of soil with formalin...	Not of sufficient importance to warrant soil treatment in the field.
Beet.....	Leaf-spot: Circular spots on leaves, with gray center and purple border....	Spray early with bordeaux 5-5-50. Afterward every ten days	Most important disease of the beet.
Beet.....	Root rot: Base of leaves black, root rotted and cracked at crown	Good drainage and liming of soil recommended	No satisfactory treatment.
Beet.....	Scab: Warty and scabby spots on roots.	Practice crop rotation	No treatment effective.
Cabbage and Cauliflower	Bacterial black rot: Leaves yellow, then black on margin, later fall off. Heads not formed	Treat seed in mercuric bi-chloride 1-1000 for 15 min.	Plant on clean soil, practice crop rotation.
Cabbage and Cauliflower	Club-root: Plants stunted and unhealthy looking, roots much deformed	Plant only healthy plants, use no manure containing cabbage refuse. Practice crop rotation. Avoid clubbed plants for transplanting	If necessary to use infected land apply lime 2-5 tons to acre previous fall or earlier.
Celery.....	Early blight: Yellowish spotted leaves. Often in seed beds	Spray with ammoniacal copper carbonate 6-3-45, make about eight applications, begin when plants are in seed bed.	Destroy diseased plants and refuse. Spray often enough to keep new growth covered.
Celery.....	Late blight: Yellowish, spotted leaves. Often in storage	Spray early as for blight, but continue to harvesting time	Have good drainage.
Cucumber...	Downy mildew ("the blight"): Yellow leaves, later drying up	Spray with bordeaux 5-5-50, every two weeks from time plants begin to run	Burn diseased plants in fall.
Cucumber...	Wilt: Plants wilt down rapidly	Destroy striped cucumber beetles, or spray with bordeaux 5-5-50, to drive beetles out..	Gather and burn all wilted leaves and vines at once.

Lettuce	Drop: Sudden wilting of plants	Steam sterilize soil to depth of two inches or more	If sterilization not feasible, use clean soil.
Onion	Mildew: Wilted plants, gray mildew on leaves	Spray with bordeaux 5-5-50, begin when plants show three leaves	Repeat spraying every ten days. Add sticker to spray.
Onion	Smut: Black pustles on leaves and bulbs	Practice crop rotation. Drill into rows when planting seed, sulphur and lime, equal parts or formalin solution	Onions from sets planted in clean soil rarely suffer.
Potato	Scab: Scaby tubers	Treat tubers before cutting in formalin solution, 1 pt. to 30 gal, water for 2 hours	Plant in clean soil. Avoid for several years diseased land. Do not lime potato land.
Potato	Late blight: Leaves spotted and blackened. Tubers show dry rot	Spray with bordeaux 5-5-50. Begin when plants are six inches high and repeat every ten days. Use clean tubers	Make about seven applications.
Potato	Early blight: Small brown spots showing concentric rings on leaves	Spray as for late blight	Plant resistant varieties.
Potato	Dry rot: Falling over and wilting of tops. Tubers show brown ring at cutting across stem end	Select seed which shows no brown ring, treat as for scab and plant in clean soil	Burn all diseased and discarded tubers.
Tomato	Leaf spot: Numerous minute angular spots on leaves	Spray with bordeaux 5-5-50 every week or ten days from time plants are set out	Stake and tie up. When setting out seedlings pinch off lower leaves.
Turnip	Club root: Plants stunted and unhealthy. the roots much deformed	Same as for club root of cabbage above	Application of lime several years ahead of planting best.
Turnip	Soft-rot (bacterial): Soft slimy rot of root	Plant resistant varieties; practice crop rotation	White turnip more susceptible than yellow.
Sweet potato	Black rot: In seedlings black spots on roots and stems. Badly rotted old roots	Practice rotation of crops. Avoid diseased roots as seed	Have dry conditions in storage.
Squash	Wilt (bacterial): Plants wilting down rapidly	Spray with bordeaux 5-5-50, to drive away insects on vines	Gather and burn all wilted leaves and vines at once.
Squash	Downy-Mildew: Yellow leaves, later drying up	Spray as for downy mildew of cucumbers	Destroy all dead plant parts in fall.
Grape	Anthracnose: Spots resembling birds' eyes on young leaves and berries	Before buds open apply strong iron sulphate solution. Repeat after 3 or 4 days	Later spray with bordeaux 5-5-50, and burn diseased wood.
Grape	Downy-mildew: Spots on leaves yellow above, with white mildew below	Spray with bordeaux 4-4-50 before rains beginning about time fruit sets	Spots on leaves are indefinite in outline, and turn dark brown. Leaves fall early.
Grape	Black-rot: Circular brown spots on leaves and berries, later turning black. Berries shrivel but do not fall off	Spray with bordeaux 4-4-50 when third leaf has expanded, when fruit is set, repeat every 2 or 3 weeks until fruit is nearly full grown	Spray with ammoniacal copper carbonate when fruit is nearly mature.
Grape	Powdery mildew: White mildew on leaves and fruit stems	Dust with flowers of sulphur, use machine	Often causes shedding of fruit.

Plant	Injury	Cause	Name	Remedy or Preventive	Remarks and Cautions
Asparagus	Shoots eaten	Beetle and grub	Asparagus beetle	Poison grubs	Cut beds close, apply arsenate of lead to young plants.
Asparagus	Shoots rusted	Rust	Asparagus rust	Bordeaux in July and August	Set clean plants on uninfested land.
Bean	Leaves eaten	Grub	Bean beetle	Poison or kerosene emulsion	Use arsenate of lead; or the emulsion 1 to 8.
Bean	Stored beans wormy	Black weevil	Bean weevil	Carbon bisulphide	Fumigate 24 hrs. in a tight vessel.
Bean	Leaves and pods spotted	Plant disease	Anthracnose	Bordeaux	Keep foliage covered with first appearance of disease.
Beet	Leaves spotted	Plant disease	Leaf spot	Bordeaux	When 4 or 5 leaves have opened, then 3 times at 10 day intervals
Cabbage	Leaves lousy	Plant-lice	Cabbage aphis	Kerosene emulsion or whale oil soap	Spray when pests are numerous, repeating if necessary.
Cabbage	Holes eaten in leaves	Green caterpillars	Cabbage worm	Poison or hellebore	Hellebore is preferable after plants have headed.
Cabbage	Stems eaten off	Naked caterpillars	Cutworms	Paper band on stems	Use poisoned bait.
Cabbage	Wilting leaves	Red and black bug	Harlequin cabbage bug	Hand picking	Sow mustard early and kill bugs thereon with kerosene.
Cabbage	Roots destroyed	White maggot	Cabbage maggot	Paper collars or dilute carbolic acid	Expose base of roots to drying sun for some hours.
Cabbage	Irregular, black spots on leaves	Bacterial disease	Black rot	Grow in clean soil	Avoid infected soil if possible.
Celery	Yellowish spotted leaves	Fungus	Celery blight	Bordeaux	Grow in moist soil or in shady, dry situations.
Cucumber	Gnawed leaves	Black and yellow beetle	Striped cucumber beetle	Poisoned Bordeaux	Dust foliage with land plaster or ashes.
Cucumber	Mildewed leaves	Fungus	Downy mildew	Bordeaux	Apply every 10 days.
Onion	Wilting tops	White maggot	Onion maggot	Carbolic soap wash	Expose base of roots to drying sun for several hours.
Potato	Leaves eaten	Beetles and grubs	Potato beetle	Poison or hand pick	Arsenate of lead is most effective.
Potato	Wilting stalks	Brown caterpillar	Stalk borer	Destroy infested stems	Rarely very injurious.
Potato	Black leaves	Plant disease	Potato blight	Bordeaux	Spray early and at 3-week intervals.
Potato	Scabby potatoes	Plant disease	Potato scab	Corrosive sublimate solution	Use 1½ oz. to 8 gals. water; plant in uninfected soil.
Squash	Wilting runners	Boring caterpillar	Squash borer	Slit stem and kill borer	Plant early trap vines.
Squash	Wilting leaves	Black bug	Squash bug	Hand picking	Trap under shingles.
Sweet potato	Leaves eaten	Small beetle	Flea and tortoise beetle	Arsenate of lead	Dip young plants in poison before setting.
Tomato	Yellow speck'd leaves	Small beetle	Cucumber flea beetle	Poisoned Bordeaux	Feeds on a variety of plants.
Tomato	Leaves devoured	Large, green caterpillar	Tomato worm	Hand picking or poison	

Spraying and Spray Formulas

(From Bulletin No. 166, South Carolina Experiment Station, "Home Gardening")

Spraying is just as necessary as cultivation and every gardener should therefore be prepared to combat the insects and fungus diseases which attack his plants. Frequently one application of spray solution applied at the right time at a cost of a few cents will save the entire crop.

In spraying for insects, it is necessary for the gardener to know just how the different insects feed. For practical purposes, the insects may be divided into two classes, (1) those which obtain their food by sucking the juice of the plant. Insects of this type cannot be destroyed by poisoning. It is, therefore, necessary to use a contact insecticide, such as kerosene emulsion. (2) Insects which obtain their food by gnawing or those which eat holes in the leaves. Insects obtaining their food in this way may be destroyed by spraying with a poisonous insecticide such as Paris green or arsenate of lead.

If one has a small orchard in connection with the garden, it is best to purchase a barrel pump as this can be used for both the orchard and garden work. If only garden vegetables are to be sprayed, then a knapsack pump or some other form of pump that will throw out a strong, uniform spray may be used. For the small garden, a pump holding from two and one-half to three gallons is amply large.

The following formulas are given for the convenience of the gardener who wishes to combat the insect and fungus diseases which appear upon his plants:

Spray Formulas

Formula No. 1. Bordeaux Mixture. (Fungicide.)

Copper sulphate (blue stone)	4 lbs.
Stone lime	5 lbs.
Water	50 gals.

Dissolve the copper sulphate in a small quantity of hot water in an earthen or wooden vessel and then dilute to 25 gallons. Slake the lime in a tub or half barrel, adding the water gradually so as to slake thoroughly. When the lime is in solution dilute to 25 gallons. The two solutions are now poured into a barrel at the same time thoroughly mixed. The solution should be strained thoroughly before it is put in the spray pump.

Formula No. 2. Dilute Bordeaux. (Fungicide.)

Copper sulphate (blue stone)	2 lbs.
Stone lime	4 lbs.
Water	50 gals.

Prepare in same way as formula number one.

Formula No. 3.—Kerosene Emulsion. (Contact Insecticide.)

Hard soap shaved fine	½ lb.
Water	1 gal.
Kerosene oil	2 gals.

Dissolve the soap in one gallon of boiling water. Remove from the fire and add two gallons of kerosene oil while the water is hot. Churn this solution for 10 minutes with a foot or force pump, during which time it should change to a creamy white mass. Keep this as a stock solution using one gallon to 10 gallons of water for soft bodied insects.

Formula No. 4.—Paris Green. (Poisonous Insecticide.)

Paris green	¼ lb.
Slake lime	20 lbs.

This is to be used dry. It is dusted over the plants by placing in an ordinary flour sack, which is tied to the end of a hoe handle. The bag is held over the plants and slightly jarred by striking the handle with the hand. Paris green sifts through the bag and settles over the plants.

Formula No. 5.—Paris Green. (Poisonous Insecticide.)

Paris green ..... ¼ lb.
Stone lime ..... 4 lbs.
Water .....50 gals.

Slake the lime in a small quantity of water and then make a thin paste of the Paris green by adding a small quantity of water and stirring. This is then added to the lime and thoroughly mixed.

Formula No. 6.—Formaldehyde. (For potato scab.)

Formaldehyde (40% solution) ..... 8 oz.
Water .....15 gals.

Place the potatoes in a coarse sack and suspend in this solution for two hours. The potatoes are then removed and allowed to dry before being planted. This treatment is not necessary unless the potatoes are infested with the disease.

BULLETINS ON GARDEN CROPS.

The following "Farmers' Bulletins" can be had by applying to the "Division of Publications, Department of Agriculture, Washington, D. C."

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Varieties	Date Planting	Duration	Treatment
Abutilon	February in box	Tender perennial	Grow in pots in house.
Agrostemma	Sow outdoors	Hardy perennial	Thin to 2 feet apart.
Ageratum	February in box, outdoors in April	Tender perennial Blue and white	Transplant for borders.
Alyssum (sweet)	Outdoors in April	Hardy perennial, perpetual bloomer	Use for dwarf edging.
Antirrhinum—Snap Dragon	Outdoors in April	Hardy Perennial	Sow where to stand in April.
Aquilegia, Columbine	Outdoors in April	Hardy perennial	Grow as separate specimens.
Asters (china)	Outdoors in April	Annual	Plant in beds 16 by 16 inches, bloom all summer.
Begonias (everblooming)	Sow in box February	Tender perennial	Plant thick in beds. Pot some for house.
Begonias (tubers)	Plant tubers in 6-in. pots March	Summer bloomers; dry off in fall	Keep dormant tubers in sand in warm place in winter.
Begonias (tall)	Get plants in pots	Tender perennial	Keep out of full sun.
Canna	Plant seed in fall, outside February in box	Tender perennial	Plant in beds and cover roots in winter with leaves.
Candytuft	Outdoors in February	Hardy perennial	Grow in beds or clumps.
Cardinal Vine	Outdoors in May	Tender perennial	Plant by trellis or porch.
Carnation, Marguerite	In box in February	Hardy perennial	Transplant in beds.
Cockscomb	Outdoors in May	Annual	Thin out to 2 feet.
Cornflower	Outdoors in May	Annual	Will reseed themselves.
Chrysanthemum	Root cuttings in fall	Hardy perennial	Plant in very rich soil and treat with manure water. Cut surplus buds in fall.
Coreopsis	Sow outdoors in May	Hardy perennial	Grow in beds for cutting.
Cosmos	Sow outdoors in April	Annual	Tall, need room. Reseed bed.
Dahlias	Sow in frame	Tender perennial	Cut top in fall and cover roots with rough manure.
Digitalis Foxglove	Sow outside in April	Hardy perennial	Three feet tall, in mixed borders.
Dolichos, Hyacinth Bean	Climbing annual, plant outside	Annual white and purple bloom	On fence or trellis; rambler.
Eupatorium Celestinum	Sow outside April in beds	Hardy perennial, blue bloom in fall	Plant in beds; fall bloomer, two feet high.
Gaillardia	Sow outside in April	Annual	Plant on borders for cutting. Bloom all summer.

(Continued)

Varieties	Date Planting	Duration	Treatment
Geraniums	Buy plants	Tender perennial	Grow in pots.
Hollyhocks	Plant in July	Hardy perennial	Transplant in September for blooming next season.
Lantana	Get pot plants	Half-hardy perennial hardy in Gulf States	Plant out in summer. Cut down and mound sawdust in winter.
Larkspurs	Outside in April	Annual tall	Tall. Set as background. Will reseed the ground.
Marigolds	Outside in April	Annual	Set in mixed border.
Mignonette	Outside in April	Annual	Plant as a border.
Memordica. Balsam Apple	Outside in April	Annual climber	Plant to trellis.
Nasturtiums	Outside in April	Annual	Give tall ones trellis; plant dwarfs as border
Pansy	Outside in August	Hardy perennial	Transplant in beds.
Phlox drummondii	Outside in September	Hardy perennial	Best treated as annual. Treat as annual and sow every fall for next season's bloom.
Phlox, perennial	Set plants in spring	Hardy perennial	
Poppy (oriental)	Sow in September	Hardy perennial	Thin to 2 feet.
Poppy (annuals)	Sow early spring	Annual	Thin to 2 feet.
Salvia (scarlet)	Sow in box in February	Tender perennial	Set in masses.
Sweet Peas	Sow in fall or late winter	Climbing, hardy perennial	Set by trellis.
Sweet Williams	Sow in July	Hardy perennial	Transplant to edging.
Verbenas	Sow in box and transplant.	Half-hardy perennial	Set in beds.
Zinnias	Sow outside in April	Annual	Thin to 1 foot.
Wallflowers	Sow July, transplant fall		Set 1 foot apart.

HOW TO HAVE A PRETTY LAWN

I.—If You Can Water Regularly and Give Good Attention.

To those who are willing to give their lawns the proper start and subsequent care, we suggest the following procedure: see that the soil is well-drained and all rocks, stumps, and trash are removed, and if the surface is irregular with ridges and sinks, a drag should be used to produce a perfectly level surface, or even slope. Give the area a heavy application of stable manure in the spring, at the rate of fifty two-horse wagon loads to the acre, and turn under deeply; put on a heavy application of water-slaked lime or of ground limestone, at the rate of about three tons to the acre, and harrow repeatedly with a cutaway harrow; continue this harrowing every two or three weeks during the summer. About September 15 to the first of October, add ground bone or cottonseed meal at the rate of 1,000 pounds to the acre, and harrow again, following the cutaway with a tooth harrow. After this give a finishing touch by raking by hand with a fine-tooth rake. When this is done sow, at the rate of 100 pounds per acre, a mixture of equal parts of Kentucky bluegrass, creeping bent grass, sheep fescue, and perennial rye grass, and cover with a compact cedar brush, or by raking again by hand.

In early spring when the ground is not too wet run a roller over the lawn, and begin to use a mower as soon as the grass is high enough to cut. The rye grass will need cutting once or twice during the late fall. Look out for moles, and kill them. Water frequently during the first summer, and take out the weeds by hand. In October give another top-dressing of cottonseed meal or bone meal; look out for thin and poor spots, and sow more seed after scratching the surface with a rake, giving extra fertilization to these places. This will give the lawn a start. Its successful continuance will require an equal amount of attention and care.

In watering the lawn do not sprinkle lightly every day, but water thoroughly every four or five days.

II.—Use Bermuda and Rye Grass in Coastal Plain, or if You Can't Water Regularly.

Bermuda is a sun-loving plant, and in shaded lawns will not cause much trouble. But in open sunny lawns in the South it is the exception when Bermuda does not enter and gain the mastery. In such a case the wise man will accept the decree of fate, and console himself with the thought that Bermuda will give a sod that for firmness, evenness, and duration cannot be surpassed in the South. Furthermore it has the exceedingly great advantage of not requiring water.

It is, moreover, not difficult to superimpose a winter green lawn on the brown Bermuda by sowing in October a generous amount of perennial rye grass on the sod, adding at the same time a good application of bone meal or cottonseed meal. The rains will beat the seeds down to a foothold, and their prompt growth will offset the approaching passage of the Bermuda to its winter brown. The rye grass, while a temporary perennial, will disappear in part during the following season, and should be sowed again each fall. In open places under average conditions, we must accept this as the best solution of our lawn problem in the coastal plain region of the South. A Bermuda grass lawn is best started by sowing the chopped up runners in March.

III.—In Any Case, Buy and Use a Lawn Mower.

In any case, buy a lawn mower, and you will have the one thing needful to improve the appearance of your home 100 per cent. Simply get rid of the sprouts and big weeds and run the mower over whatever comes. The spontaneous summer grasses, even if mixed to some extent with weeds, will give you a pretty, green expanse that you will be proud of.—Prof. W. C. Coker.

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